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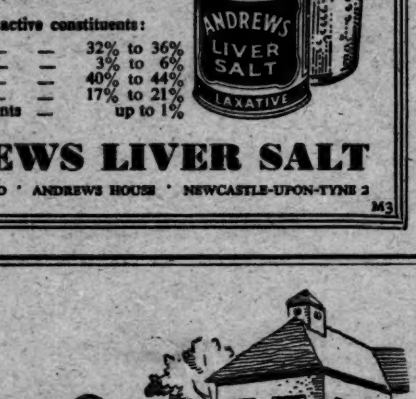

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BRITISH MEDICAL JOURNAL

LONDON SATURDAY MAY 19 1945

"PRIMARY ATYPICAL PNEUMONIA"

AN EPIDEMIC ASSOCIATED WITH MALARIA

BY

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There is still considerable doubt as to what extent atypical pneumonia is a "new" disease in the sense that von Economo's encephalitis was a new disease in 1918, or whether until recent years these cases went unrecognized under such diagnoses as bronchitis, bronchiolitis, pneumonitis, etc. There appears to be considerable variation in the severity of the illness, and in some published series most of the cases were mild. Thus Campbell *et al.* (1943), while reporting one death in 200 cases, say that on the whole they were mild with infrequent complications, and among 75 cases occurring in a college Contratto (1943) reports that none was serious. It can readily be believed that the milder cases occurring sporadically may have gone unrecognized, but it is not so easy to see how, in its more acute manifestations, the disease could have passed the notice of clinical and radiological scrutiny, especially when encountered in an epidemic form.

The review of early reports in the excellent paper of Drew *et al.* (1943) makes it clear that similar cases were apparently noted from time to time in America, France, and Spain during the past 10 years. But it seems to have been a rarity in Great Britain, and only since the war began have frequent reports drawn attention to its prevalence. Most of the recent reports are from the Services, and the careful medical scrutiny which is given even to minor illness probably accounts for the identification of many mild cases which would pass unrecognized in civil practice.

Whether or not it was frequent but undiagnosed before the war, it seems that the increased incidence now noted is due to the opportunities for infective spread in the crowded communities inevitable in wartime, and it invites comparison with the influenzal pneumonia of 1918. Fortunately, atypical pneumonia so far has manifested as a disease of relatively mild incidence and low morbidity. It has been suggested (Army Medical Department Bulletin, 1943) that dietary deficiency may account for the increase in certain cases, but this certainly does not apply to the Services. Whether in debilitated populations the disease may develop more serious forms remains an uncomfortable possibility.

In a series of 125 cases Needles and Gilbert (1944) had one fatal case, which came to necropsy. The illness ran a typical course till the 11th day, and the patient then became dyspnoeic and cyanosed. Death occurred on the 18th day, and the main finding was a profuse purulent bronchiolitis. The authors point to the similarity between their cases and types of influenza described by workers in 1918–19.

Epidemiology

The present paper is based on a series of 112 cases treated in a military hospital while on service in North Africa and Italy. Only a handful were encountered in Africa, but during the first few months in Italy the numbers were such as to suggest an epidemic. Leishman and Kelsall (1944), in a review of their work in a hospital in India, report no case of atypical pneumonia in a total of 11,645 cases. This, in association with other reports we have been able to review, suggests that atypical pneumonia is a disease of temperate climates and is rare in the Subtropics and Tropics. It is generally accepted that atypical pneumonia is of virus origin, but no relation has been shown with any of the known virus diseases. The psittacosis virus has been suggested as a possible cause, but in Italy birds of any sort, not to mention parrots, are a rarity. In addition, atypical pneumonias have been noted in association with lymphocytic choreomeningitis, rickettsial infections, Rocky Mountain fever, influenza, chicken-pox, and other diseases thought to be due to virus infections. Howat and Arnott (1944) report seven cases of atypical pneumonia in smallpox contacts, and quote Reimann, Hewens, and Price, who claim that this syndrome may be produced by smallpox virus. It is perhaps worth noting that prior to the quasi-epidemic of atypical pneumonia here described there had been a large incidence of infective hepatitis, also a virus disease of unknown origin, and the two diseases were seen in comparable numbers throughout the period of investigation. We were unable to show any relation between the two. No lung lesions were found in a selected number of cases of hepatitis, and although two cases of atypical pneumonia developed mild jaundice, this is recognized as an occasional complication (Reimann and Stokes, 1939).

It is clear, therefore, that an atypical pneumonia may occur in association with most of the known virus diseases, but there is no evidence to show that primary atypical pneumonia is associated with any one in particular.

There was no case of cross-infection in any ward nursing atypical pneumonia, and no member of the staff was infected. We were, however, able to obtain some evidence of infectivity among patients admitted from the same units. Thus there were several groups from the same military units, many beginning on the same day, and therefore suggesting a common source of infection, and, in addition, evidence that others had been infected by their comrades. From a survey of 30 such cases, made up of groups from five units, it was possible to arrive at a probable incubation period, with extremes from 6 days to 12 days; the average incubation period was 10 days. It appears, therefore, that the disease is infective only during incubation, and that, when established, may, like infective hepatitis, be treated in general wards without fear of cross-infection. Vance *et al.* (1943) gave sputum and nasal washings from 12 patients to 5 volunteers intranasally. They failed to produce infection. This supports the view that the established disease is of low infectivity.

Onset and Course of Illness

The onset was marked in most cases by fever, malaise, and shivering (or a definite rigor), muscle pains, headache, anorexia, and, in a few, constipation and nausea. One case began with

vomiting, one with diarrhoea, and a third had a small haemoptysis as the first sign of illness. These groups were distinguished according to the mode of onset:

1. Gradual onset with low fever, malaise, and some of the mentioned symptoms in a mild form (39=34.8%).

2. More sudden onset with pain in the chest and high fever. Two cases in which the lesion manifested at the extreme base had pain in the corresponding side of the neck as the initial symptom (39=34.8%).

3. In a third group the initial symptoms were masked by malaria, and were diagnosed by discovering a few rales in a patient who was not responding to quinine (34=30.4%).

The second group, who showed no evidence of malaria, had an onset severe enough to suggest at first malaria. These cases usually ran an acute course with high fever, and demonstrate that atypical pneumonia is not always a "benign" illness, unless one restricts the term to the question of morbidity and complications. The fever usually finished by rapid lysis about the eighth day, with extremes of 1 and 24 days. There was considerable debility in most cases, but 7 to 14 days after subsidence of fever they were able to be transferred to a convalescent depot, and were then seen a month later for further radiographs. Convalescence was continued if necessary till the lung fields were clear.

Age Incidence

In common with American reports, in this series we found a maximum incidence in the younger age groups, as is shown by the following figures:

Age Group:	15–19	20–24	25–29	30–34	35 and over
No. of cases ..	1	43	27	25	16

In this respect atypical pneumonia is quite unlike pneumococcal pneumonia.

Symptoms

Cough.—As an early symptom, cough, troublesome and non-productive, is described by other writers (Drew *et al.*, 1943; Meakins, 1943; Correll and Cowan, 1943; Leake and Blatchford, 1943), but in this series cough was slight or absent in 69 (61%), and in the remainder was never troublesome—that is, counter-measures were not required.

Rigors.—Of the 112 cases 59 had shivering at or near the onset, and in a large number—about 25% of the whole—there was a brisk rigor signalling a sudden onset. Discounting those who had a malarial complication, the remainder showed a similar onset, 50% having initial shivering, and about half of these a definite rigor. Unlike lobar pneumonia, the rigor, when it occurred, was not closely associated with chest pain, although in most cases there was pain of various types a few days after the onset.

Pain in the Chest.—Of the 112 cases 70 had pain of some sort in the chest. It was not so severe as typical pleuritic pain, and was found as a rule to be strictly localized to the site of the lung lesion. The majority had pain in the antero-lateral aspects in relation to the fan-shaped lesion spreading from the hilum. In others the pain was felt in the back, again on the side, and at the site of the lung lesion. In seven cases pain was felt in the supraclavicular region and in the neck; in five of these a lesion in the upper lobe was found, but in two others the lesion was situated on the diaphragm, indicating reflex irritation via the phrenic nerve. In three cases in which a dense lesion was found spreading from the midzone of the hilum the patients complained of a constricting pain across the chest at this level. Although pain was so frequent, friction was not detected in any case, thus sharply differentiating this type of lesion from that of lobar pneumonia, in which the pleural surface is usually involved early. This is in line with the view, long held by one of us (J. F.), that the so-called pleuritic pain is not due to friction between inflamed pleural surfaces but to a spasm of the chest musculature over the site of the lesion. The pain was not notably aggravated by cough or deep respiration, and only in one case was morphine required. In Meakins's (1943) cases this "non-pleuritic" pain only was noted, but Drew *et al.* (1943) found friction pain in four cases in their series of 50, and Markham (1942) found pleural involvement in three of 65 cases. It is evident that the atypical lesion does not usually spread to involve the pleura. Even when radiologically the lesion had apparently spread to the lung periphery no friction was detected.

Sputum.—The quantity and type of sputum were found to be roughly related to the extent of the lung lesion and to the severity of the illness in general. Thirty-four (30.4%) had no sputum throughout, but one of these was ill enough to be put on the "serious" list. All the others had a little mucous sputum early in the illness, but it was seldom notable before the third or fourth day, by which time it had usually become mucopurulent, and 24 on or about the fourth day had some blood present. In four the sputum at one point could be described as rusty! Drew *et al.* suggest that such a finding calls for a review of the diagnosis, but all were otherwise typical (e.g., Case 28).

Bacteriology of the Sputum.—In every case except one sputum culture produced a mixed flora. Pneumococci were present in almost every case, usually in association with streptococci; but frequently Friedländer's pneumobacilli, and less frequently *Micrococcus catarrhalis* and staphylococci, were also present. In one case Pfeiffer's bacillus was in association with pneumococci and streptococci, and in two cases only a few pneumococci were grown from scanty mucoid sputum. The almost constant presence of pneumococci raises the question of their pathological significance; but the course of the illness, uninfluenced by sulphonamides, the low leucocyte count, and atypical lung appearances, made it unlikely that they were more than the normal flora of the upper respiratory tract. One of us (J. F.) has shown that a low leucocyte count in the early stages of pneumococcal pneumonia is found only in extremely toxic cases, usually Types II, III, and related types. In such cases the lung lesions are as a rule massive and typical. Unfortunately, biological selectivity tests were not available to us.

Leucocytes.—Counts were made in 68 cases during the first 48 hours after admission (most of the cases were admitted on the first or second day of illness), and in many instances were repeated on the sixth and ninth days. The highest count was 13,600 per c.mm., and the lowest 3,400; 20 (16.9%) were under 6,000, 62 (55.3%) were under 10,000, and 5 were more than 10,000. These findings are similar to those of Meakins (1943), who found less than 10,000 per c.mm. in 73% of his cases; Leake and Blatchford (1943), who found counts from 6,000 to 9,000; and Correll and Cowan (1943), who found less than 9,000 per c.mm. in 55.5% and less than 12,000 in 95%. Haight and Trolinger (1943) state that while the count was low or normal at the onset, later they found mild leucocytosis. In the present series two were found to have an increase from 7,600 and 5,000 on the third day to 10,400 and 9,600 respectively on the sixth day, but most showed no notable change, and in several the count decreased—e.g., in one, 7,800 on the third day, 6,100 on the sixth, and 4,600 on the ninth. Shone and Passmore (1943) state that one of their cases had a leucocytosis of 61,000 per c.mm.; this must be exceptional. In 30 typical cases we made differential counts (see Table).

With few exceptions these counts reveal a relative lymphocytosis with a slight increase in monocytes. There was no eosinophilia and no primitive cells were noted. Moeschlin

Differential White Cell Counts: Percentages

Case No.:	1	2	3	10	12	20	25	27	28	35	36	39	51	53	56	64	66	74	82	84	90	92	93	98	100	110	112	118	119	120
Polymorphs	56	64	70	50	31	61	28	49	64	61	59	39	52	62	44	63	68	54	56	50	69	70	68	66	52	62	47	55	85	61
Lymphocytes	36	27	22	44	62	30	69	47	30	34	39	46	43	36	50	32	25	45	43	30	24	23	33	32	28	32	39	40	14	37
Monocytes ..	7	8	4	5	7	7	3	4	5	4	2	5	5	5	4	5	7	1	1	10	6	6	8	2	14	4	8	4	1	2
Basophils ..	—	—	1	—	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	1	—	—	—	—
Eosinophils..	1	1	3	1	—	1	—	—	1	1	—	—	—	1	2	—	—	—	—	1	1	1	1	—	4	1	6	1	—	—

(1943) finds a lymphocytic reaction to be usual in virus pneumonia (primary atypical pneumonia) between the 12th and 17th days. The lymphocytes may form 74% of the total white cell count on the 13th day, and then begin to fall. He also noted an eosinophilia as high as 10% on the 13th to 15th days. Similar changes are found in infectious mononucleosis, measles, and hepatitis. He points out that in pneumococcal pneumonia the lymphocytes are usually less than half the total of those present in atypical pneumonia, and suggests that this fact may be useful in differential diagnosis.

Cold Agglutinins—Ramsay and Scadding (1939) and Turner *et al.* (1943) report that high titres of cold agglutinins were regularly found in primary atypical pneumonia. This promises to be of great value in differentiation. Under field conditions it was found to be impracticable to undertake this investigation for the series. In two cases with characteristic clinical and radiological findings cold agglutinins were absent.

Physical Signs

Most of our patients had sharp fever. The average duration of pyrexia was 8 days—ranging from 1 day to 24 days; in 51% it was 8 days and less, and in 81% 10 days and less. In many cases the illness began with high fever, in 82% reading more than 102° F.; 42 had peaks of 103° F. or more, the highest being 105.4° F.; only 8 of these latter had an associated malaria. In remarkable contrast to the high level of the temperature curves, there was little or no change in pulse or respirations. Brachycardia was not observed (Drew *et al.*, 1943; Meakins, 1943). Cyanosis and dyspnoea were unusual or absent, as was to be expected from the small amount of lung tissue involved. About 70% had frontal headache, which was sometimes very intractable and suggested meningeal irritation. Five had suffusion of the eyeballs, and slight labial herpes was noticed in 4 cases. Faucial congestion (3 cases), epistaxis (2 cases), jaundice (2 cases), and petechial rash (1 case) were also noted. Gastro-intestinal disturbance was rare, and occurred usually at the onset (anorexia, nausea, diarrhoea, and constipation). Six patients were notified as being seriously ill; but once the diagnosis was established there was little cause for anxiety, and the illness terminated quietly by lysis. There was no case showing albuminuria, and no diminution of chlorides was observed.

Enlarged spleen was found in only 8 patients, and 5 of these had an associated malaria. Owen (1943) noted an enlarged spleen in 8 of 16 patients, not associated with malaria.

Chest Signs.—Twelve patients had no detectable physical signs throughout the illness. They were found to have minimal lesions radiologically—either centrally, in a lobe, or closely applied to the hilum. Ten who had no signs during the first few days, when the lesion was still distal from the periphery, had detectable signs later, when radiographs showed spread to the lung surface. As has been generally noted, the most common finding was small crepitations strictly localized to the area of the lesion, and usually accompanied by a diminished breath sound. Next in frequency came harshness of the breath sound, and in many cases a soft tubular breath sound was heard. Occasionally, when the lesion was larger and denser, and especially if basal, the percussion resonance was diminished, but frank dullness was not observed. Since the lesion usually is relatively small and may occur in any part of either lung from apex to base, a very careful examination of the whole surface area is necessary. At first we failed at times to detect signs until radiographs had indicated the place, but latterly the significance of localized small signs had made the diagnosis possible before radiological confirmation. In no case was there any evidence of pleural effusion.

Complications.—Drew *et al.* in their series of 50 had three cases of otitis media and one of antral sepsis, and in common with other writers they found a secondary rise of temperature "on many occasions." Secondary temperatures did not occur in our series, and there were no complications, except in two cases which early in the illness developed mild transient jaundice. This absence of complications we ascribe in part to the routine use of sulphonamides, which for this reason, and for other reasons stated below, we recommend in treatment. Leake and Blatchford report that chemotherapy is ineffective, and that they had no complications. We believe that "chemotherapy" (meaning sulphonamides) and "no complications" are more closely related than is implied.

Treatment

We kept our patients in bed for 7 to 14 days after the temperature became normal, and continued convalescent care, usually in an adjoining convalescent depot, till the lung was clear radiologically. As full a diet as the appetite allowed was our rule, for there were no gastro-intestinal difficulties worth mentioning. Chest pain and cough yielded to simple measures. When the temperature was high it was dealt with by sponging, but the absence of respiratory embarrassment (as in lobar pneumonia) allowed these patients to be comfortable in spite of a high temperature.

There is no specific treatment, but several good reasons may be advanced for giving a sulphonamide when the lung lesion has been found.

1. The diagnosis of "atypical pneumonia" cannot be made with certainty in the first few days of illness even with *x*-ray evidence, and the administration of a sulphonamide for at least a few days is a valuable therapeutic test and an assurance against missing a pneumococcal pneumonia.

2. The "atypical" lesion is a debilitated area of tissue probably highly vulnerable to the flora of the upper respiratory tract, especially pneumococcus and streptococcus. It seems reasonable to hope that sulphonamides may inhibit secondary infection by these possible invaders.

3. It may be objected that sulphonamides may depress the already low leucocyte count. But it appears that the leucocyte count in these cases is around normal figures because this type of infection does not call forth a leucocyte response, since there is no indication that the count is low because of "depression" of the marrow. If this be so, it is not to be expected that sulphonamides will adversely affect the leucocytes to any extent. The findings in this series seem to indicate that sulphonamides from this point of view are harmless in the ordinary case.

On these grounds we gave to every case 2 g. of sulphapyridine or sulphathiazole when the diagnosis of a "pneumonia" was made, and continued with 1 g. every four hours for three or four days.

Association with Malaria

The majority of our cases were admitted during a period when there was a heavy incidence of malaria in the area. About one-third (30.3%) had the typical lung lesion in association with malaria. The presence of malaria did not, however, have any influence on the period of pyrexia due to the atypical pneumonia. In both groups (atypical pneumonia plus malaria, and atypical pneumonia alone) the average duration of pyrexia was eight days (Case 15).

If we had not been aware of the prevalence of atypical pneumonia many of the malaria-infected cases might from physical signs alone have been assumed to have merely associated bronchitis of malarial origin. Several cases had an acute onset resembling malaria, and the diagnosis became clear only as the illness progressed unaffected by quinine therapy (Case 49).

The fact that the presence of malaria, and antimalarial therapy, did not influence the duration of pyrexia seems to support the view that the association was fortuitous, although it is possible that a latent malaria might be activated by the onset of atypical pneumonia. Conversely, a population debilitated by malaria may well be more susceptible to this virus infection.

In North Africa we saw very many cases of malaria and only a handful of atypical pneumonia; but these malaria cases were largely fresh infections in healthy troops, whereas about 50% of the malaria infections seen in Italy were relapsed cases, often many times relapsed.

It would seem, therefore, to be true for primary atypical pneumonia, as according to Osler (Christian, 1942) it is for pneumococcal pneumonia, that its occurrence in association with malaria is fortuitous.

Radiological Findings

In common with other observations the *x*-ray findings in this series showed much diversity. In 56% the lesion was right-sided and there was a predilection for the middle and upper zones. In the lower zones the costophrenic angle area (Case 120) and less often the cardiophrenic area were the

sites mainly affected. Lesions maximal at the hilum were usually on the right side.

In a few cases a whole lobe appeared to be involved, but in the large majority the lesion was small. The area of opacity in no case traversed more than one lobe, but in three cases a lesion was found at both bases. The appearances in these latter resembled the tracheobronchitis described by Kornblum and Reimann (1940). The opacities were never so dense as in pneumococcal pneumonia and usually showed some degree of

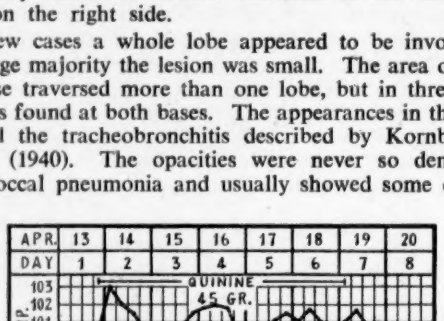

FIG. 1.—Case 15 Atypical pneumonia and benign tertian malaria.

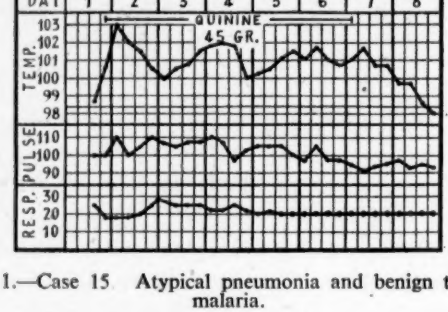

FIG. 2.—Case 49. Onset resembling malaria.

mottling. Three showed an area of loss of translucency with marked reticulation at the hilum similar to the second type of Drew *et al.* (1943). The edges were indefinite except where bounded by a pleural line.

In one group the lesion was localized at the periphery but had no apparent connexion with the hilum; some of these were fan-shaped, with the apex towards the hilum (Case 118), but others were rounded or oval. In one the whole right supraclavicular region was involved. Where the lesion was fan-shaped one or more branches of a main bronchus were seen to be involved, as in the "partial pneumonias" described by Shanks, Kerley, and Twining (1938). In one case a lesion starting at the periphery was followed serially and was seen to spread towards the hilum.

The opacities usually persisted for some time, often several weeks, after the patient was afebrile, although in a small number resolution was complete before the patient left the hospital for the convalescent depot. In all those we were able to follow (34) the lung fields were clear in from four to six weeks after becoming afebrile, but frequently a thickening of the pleural line persisted. In nearly all cases the hilar shadow was enlarged on the side of the lesion only. In several cases with upper-zone lesions the *x*-ray appearances suggested tuberculosis, but serial films and the clinical course readily eliminated this diagnosis. Other writers state that lung abscess, carcinoma of the lung, unresolved lobar pneumonia, and bronchiectasis may simulate the appearances of atypical pneumonia; that difficulty did not arise in this series.

After the considerable experience afforded by this investigation it was found possible to make a fairly definite diagnosis by radiograph only; but, where there was doubt, correlation with the clinical findings clarified the issue.

Illustrative Cases

Case 2.—Pte. A., aged 20, was admitted on May 7 with a history of two days' headache and aching in the back. He shivered at the onset, and since then had been perspiring. He complained of loss of appetite and slight nausea, and had a little dry cough. There was no past history of malaria. On admission he was flushed and looked "toxic." No physical signs were detected in the chest. Temperature 101.8° F., pulse 100, respirations normal. Blood smears for malaria were negative. Two days later he complained of a tight feeling across the chest, and sticky rales were heard over the right upper lobe anteriorly. Next day a small crop of petechiae appeared on the chest and back. The white cell count on May 9 was 5,500 per c.mm. (polymorphs 64%, lymphocytes 27%, eosinophils 1%, mononuclears 8%). Some mucoid sputum obtained on the same day showed a few pneumococci, pneumobacilli, and non-haemolytic streptococci. The fever continued for six days and fell by lysis. Radiography showed infiltration extending from the right upper hilum to the right apex. This case was one of five admitted from the same unit; they were probably infected on the same day.

Case 15.—Pte. B., aged 20, had been over-seas for nine months, but had previously been well. His illness began on April 13 with the gradual onset of headache. He had no shivering, cough, or sputum. His temperature rose to 101.5° F.; pulse 90. Blood smears were positive for B.T. malaria, and he was given full doses of quinine. Next day his temperature was 103° F., and a harsh breath sound with a few crepitations was noted over the right middle lobe. Radiographs showed an area of infiltration, chiefly at the periphery of the right midzone and bounded below by the right middle pleural line. His temperature persisted around 102° F. for seven days, terminating by lysis on the eighth day. A follow-up radiograph on May 6 showed no abnormality.

Case 16.—L/Cpl. C., aged 25, was admitted on April 28. Four days previously he had a sudden onset of headache and backache accompanied by a rigor. On the morning of the 25th he wakened with a stabbing pain in the left back on breathing or bending. On the 27th a blood smear showed B.T. malaria, and quinine in full doses was given. On the 29th radiographs showed a small opacity in the left midzone, chiefly peripheral. On the 25th his temperature was 105° F. and pulse 100; thereafter he ran a sharp fever, uninfluenced by quinine, for six days. The white cell count was 9,650. A repeat radiograph on May 12 showed clear lung fields. In this case there were no physical signs and no sputum throughout the illness.

Case 28.—Cpl. D., aged 22, was admitted on April 25 complaining of headache and of shivering for two days. Next day blood smears showed B.T. malaria, but examination of the chest was negative. On the 27th he produced some rusty sputum, and radiographs showed a fan-shaped patch of consolidation extending from the right upper hilum and bounded below by the right middle pleural line. The white blood count was 5,650 per c.mm. (polymorphs 64%, lymphocytes 30%, monocytes 5%, eosinophils 1%). The sputum contained many pneumococci, with streptococci and Friedländer's pneumobacilli. He ran a moderate temperature (100° to 101° F.) for eight days, and had a rapid convalescence.

Case 49.—Pte. E., aged 29, was admitted on April 29 with a history of sudden onset of headache, shivering, general aching pains, and slight cough, of 12 hours' duration. Blood smears for malaria were negative. On admission he had some small rales in both midzones, and next day a soft tubular breath sound was heard in the right lower zone anteriorly. Radiographs showed a band of consolidation extending from the hilum to the periphery and situated on the diaphragm. The white cell count was 13,600. There was no sputum throughout the illness, and he ran an intermittent high fever swinging between 100° and 104° F. for eight days, uninfluenced by full doses of sulphapyridine. Blood culture was negative. Convalescence was disturbed by the onset of a mild dysentery (Schmitz), but otherwise he made a rapid recovery.

Case 66.—Gnr. F., aged 22, was admitted on April 22 with a history of sudden severe headache, shivering, and backache two days previously. Blood smears for malaria were negative. During the first five days no physical signs were detected and he was treated for malaria, but on the 28th scattered rhonchi were heard over the right upper chest and, later, crepitations were heard at the inner end of the fifth right interspace. The white cell count was 5,800 per c.mm. (polymorphs 68%, lymphocytes 25%, monocytes 7%). Radiographs showed a small patch of consolidation in the right inner subclavicular region. He had an intermittent high fever for eight days, swinging between 100° and 103° F.

Case 68.—L/Sgt. G., aged 25, was admitted on April 28. For three days he had felt unwell with slight headache, anorexia, and backache. He had a slight cough but no sputum or chest pain. On admission his temperature was 102° F. and pulse 95. On the 30th he had a rigor, and blood smears showed B.T. malaria. On the same day crepitations were heard over the left upper zone anteriorly and radiographs showed a fan-shaped area of consolidation extending

outwards from the left upper hilum to the outer subclavicular region. The white cell count was 3,300. There was no sputum throughout the illness. He had eight days' mild pyrexia, and three weeks after the onset radiographs showed only a little residual striation.

Case 113.—L/Cpl. H., aged 21, was admitted on Aug. 16 complaining of headache, dyspnoea, and general malaise. He also had pain in the right chest anteriorly on respiration. Three days after admission he had a small haemoptysis, but no physical signs were detectable till the following day, when crepitations with distant tubular breathing were heard at the right base and radiographs showed an oval consolidation situated on the diaphragm, which was slightly elevated. The white cell count was 5,650 per c.mm. On admission his temperature was 100° F., but on the two succeeding days it reached 103° F., and settled by lysis on the sixth day. The pulse was never more than 100 and respirations 22. Culture of the sputum showed streptococci, pneumococci, and *M. catarrhalis*. A radiograph four weeks after the onset showed only a slight residual opacity.

Case 118.—Gdsmn. I., aged 22, was admitted on Sept. 25 with a history of a few hours' headache and shivering. His temperature on admission was 104° F. and pulse 110. Blood smears were negative for malaria. On the 27th no physical signs were detected, but radiographs showed a fan-shaped area of consolidation in the left upper zone, chiefly peripheral. The left hilar glands were notably enlarged. The white cell count was 5,200 (polymorphs 55%, lymphocytes 40%, monocytes 4%, eosinophils 1%). He had no sputum till four days after the onset, when there was a slight haemoptysis. He had a high intermittent fever (100° to 104° F.) for nine days, but made a rapid convalescence.

Case 120.—Dvr. J., aged 37, was admitted on Sept. 23 complaining of headache, shivering, and backache. He had a slight cough with a little mucoid sputum, and complained of pain in the left lower chest anteriorly. A few coarse crepitations were heard in this area, and radiographs showed a fan-shaped opacity in the left lower zone of medium density, extending outwards from the lower hilum and leaving the costophrenic angle free. The white cell count was 5,000 per c.mm. (polymorphs 61%, lymphocytes 37%, monocytes 2%). Blood culture was negative. Temperature on admission was 101° F.; thereafter he ran a high intermittent fever, with frequent peaks of 103° F., for nine days. Radiographs three weeks after the fever subsided showed that the lesion was rapidly resolving.

Discussion

During some months of the Italian campaign atypical pneumonia was an important cause of long-term sickness. As compared with other reports available to us, our cases ran a much more acute course, as evidenced by the high temperature maintained with small intermissions, but complications were absent and there was no morbidity. Our evidence supports the view that the disease is of virus origin, and the similarity of the clinical and radiological pictures suggests that in this series the same virus was responsible. There was no evidence of association with other known virus diseases. It is notable that diseases presumably due to a virus—infective hepatitis, varicella, poliomyelitis, and atypical pneumonia—have occupied a pre-eminent place as causes of long-term sickness in this campaign. This is testimony to the fact that in the Second World War the bacterial diseases have been largely under control, thanks to sulphonamides and the various prophylactic measures. Apart from typhus, the answer to most of the virus diseases is still awaited.

In many cases the severity of the illness was in marked contrast to the small area of lung involved. This suggests an analogy with poliomyelitis, in which the lesion may be very small even in fatal cases. But while a small local lesion is the rule in poliomyelitis, fatal cases occur, with widespread damage to the nervous tissue. Is it to be feared that atypical pneumonia also may produce extensive lesions, and will this prove to be the "influenzal pneumonia" of 1918 and 1929? Just as in severe cases of poliomyelitis acute haemorrhagic reaction may occur, so in atypical pneumonia frank bleeding from the irritated lung tissue is not infrequent, unaccompanied by the bacteria-laden mucus seen in pneumococcal pneumonia.

In view of the frequent association of malaria and atypical pneumonia in this series we recommend that cases of malaria which fail to respond to quinine should have a thorough clinical and radiological examination to exclude the association. It has been our practice in these cases to continue antimalarial treatment with quinine only when the atypical lesion has been discovered; for, as we have stated above, every patient in whom the pneumonia was diagnosed was given sulphapyridine or sulphathiazole, and it has been our experience that a sulphonamide and mepacrine together may not be well tolerated. The combined use of a sulphonamide and quinine, on the other hand, causes no disturbance.

Summary

Cases of primary atypical pneumonia to the number of 112 were admitted to a military hospital in Italy during the spring of 1944. For some weeks the incidence reached epidemic proportions.

Most of the cases had an acute onset and ran a high intermittent fever for an average of eight days. In other respects the clinical findings were similar to those in recent British and American reports.

There were no complications and no morbidity, but there was considerable debility, requiring four to six weeks' convalescence, so that the majority of these men were off duty for a total of about eight weeks.

One-third of the cases had a benign tertian malaria infection in addition to atypical pneumonia. There was no evidence that the association was other than fortuitous in a population among whom malaria was prevalent.

Sulphathiazole and sulphapyridine had no effect on the course of the illness, but we ascribe the absence of complications and secondary fevers to their routine use. There was no indication that they had any toxic effect on the polymorphonuclear leucocytes, and when used in combination with full doses of quinine, in the malaria cases, no adverse effect was noted.

We wish to thank Major W. Stewart for his assistance with the bacteriological examinations; S/Sgt. Maitland for his work with the records; and Col. R. I. Poston, T.D., for his co-operative encouragement.

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INCIDENCE OF PUERPERAL AND LACTATIONAL MASTITIS IN AN INDUSTRIAL TOWN OF SOME 43,000 INHABITANTS

BY

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It is very difficult to estimate the true incidence of mastitis, as most statistics come from hospitals and cases occurring in domiciliary midwifery practice are not included. In addition, information is not as a rule available to the hospital staff as regards the occurrence of mastitis in patients after they have been discharged from maternity hospitals—usually not later than, and often before, the fourteenth day of the puerperium. Hospital statistics thus tend to underestimate the number of cases.

Moon and Gilbert (1935) state that the frequency of puerperal infections of the breast is probably underestimated and too little notice is taken of the associated morbidity, the chief reasons for this being that (1) patients pass to surgical care other than that responsible for delivery, and (2) there is practically no mortality due to mastitis. Waller (1938) supports this view, and is sure that many lying-in institutions underrate the risk of breast infections through not hearing of the results. Chatillon (1941) says that statistics found in the literature, although valid for any particular institution, give only a very imperfect idea of the real incidence of mastitis because of lack of information

as to what happens to women after discharge from hospital or to those delivered at home. Macpherson (1943) also holds this opinion, and may be quoted: "Infection in the puerperal breast, however, has received less attention than its frequency and ill effects upon the mother merit, possibly because most cases begin about the time of the patient's discharge from institutional care, after a hitherto apparently normal puerperium." Rubeska is quoted in Williams's (1941) *Obstetrics* as finding a frequency of 0.54 to 4.1% in the various German clinics, while Waller (1938) found that out of 163 patients attending his clinic, and all delivered in one hospital, 11 (6.7%) developed suppurative mastitis. Chatillon (1941) estimates that the incidence has fallen during the past 40 to 50 years from 5–15% to 0.5–1.5%. Gilbert (1941) states that 3% in a series of 100 cases had recurrent mastitis—"which is higher than the usual incidence"; and Robinson (1943), in a series of 1,100 cases of failing lactation, found that 33 (3%) gave a history of breast abscess. It may be noted that most writers estimate the maximum frequency at the present time to be not more than 3%, and that the author who records the highest incidence (6.7%) obtained his statistics from a child welfare clinic.

In view of the meagre information available, apart from hospital statistics, about the incidence of mastitis it was thought that an inquiry into the relevant conditions in a circumscribed area might shed some light on the problem.

The Investigation

The area concerned is an industrial town in Scotland with a population of roughly 43,000, and has a municipal maternity hospital with 30 beds. In order to ascertain the actual frequency of mastitis a system of "unofficial" notification was initiated. Each health visitor was asked to notify, using a standard form of notification, all cases of puerperal or lactational mastitis occurring in her district. This did not give an absolutely complete incidence for the period under review, as almost certainly some cases were missed, but any inaccuracy must have been on the side of underestimation.

Criterion.—Definite evidence of suppuration was the criterion adopted as to what constituted mastitis. Without such a standard it would have been difficult to exclude "breast flush" or simple engorgement; and, for the purpose of this survey, mastitis was considered to be present only when there was a history of spontaneous evacuation or incision of an abscess.

Period under Review.—The notification scheme was started in Dec., 1941, and cases known to have occurred in the later months of 1941 were included to cover the period from Sept. 1, 1941. Any case of mastitis occurring after Dec. 31, 1943, was excluded. The period under review was therefore two years and four months.

Incidence.—This has been taken to be the number of cases of suppurative mastitis occurring from Sept. 1, 1941, to Dec. 31, 1943, as a percentage of the total births. The incidence found may be slightly lower than the true one, as the notifications for the months of Sept., Oct., and Nov., 1941, were retrospective and depended on the memory of the health visitors. For this reason the incidence for each year is given separately.

During this period 156 cases of suppurative mastitis were notified—i.e., almost one in every ten recently parturient women in the town certainly suffered from breast abscess—while the following must also be taken into consideration: (1) Some cases may not have been reported, or may have been missed for some other reason; (2) patients who had mastitis which resolved without going on to abscess formation were not included. The real incidence of mastitis, including non-suppurative forms, must therefore have been higher than the figures given in Table I would suggest.

TABLE I

	Total Births	Mastitis Cases	Percentage
1/9/41 to 31/12/41	251	16	6·37
1942	737 } 1,500	77 } 140	10·45 } 9·33
1943	763	63	8·26
Totals ..	1,751	156	Mean 8·91

Parity.—In the series of 156 cases of mastitis 92 (59%) were primiparae and 64 (41%) were multiparae (Table II). The proportion of primiparae to multiparae in all the burgh births during the period concerned is not available, but it is possible to give the proportion for the maternity hospital. It may be contended that a hospital proportion would not be truly representative, as in most maternity hospitals first confinements predominate. This contention does not apply to any great extent in the hospital concerned, as most confinements (over 90%) were booked cases, admitted strictly in order of application and not on account of any anticipated difficulty nor because of primiparity; less than 10% were emergency admissions. Of the total confinements in the maternity hospital from Sept. 1, 1941, to Dec. 31, 1943, 51% were of primiparae. The proportion of primiparae to the total births for the burgh was not likely to be greater, and therefore it will be seen that a slightly larger number of primiparae developed mastitis (59%) than might have been expected from the proportion of primiparous patients (51%) found in the local institution. The percentage of primiparae in this series was not so high as that found by Moon and Gilbert (1935) in the City of London Hospital (73%), and was more in agreement with Winckel's estimate (two-thirds were primiparae) as quoted in Williams's *Obstetrics* (1941).

TABLE II.—*Parity*

Hospital deliveries:		Mastitis cases (156):	
Primiparae	51·4%	Primiparae	92 (59%)
Multiparae	48·6%	Multiparae	64 (41%)

Place of Delivery.—Most authorities are agreed that mastitis is more common in institutions. Moon and Gilbert (1935) found a much smaller incidence of mastitis in their district patients, who were, broadly speaking, of the same social status and general health as the hospital patients; and they came to the conclusion that acute puerperal mastitis is essentially an institutional disease. Chatillon (1941) says that mastitis seems to occur more often in maternity institutions than in the patients delivered at home, and Waller (1938) also considers that the incidence of mastitis is much higher in women delivered in institutions. Although in the present investigation very few cases of mastitis actually occurred in the municipal maternity hospital, 121 of the 156 patients (77.6%) had been delivered in the hospital (Table III), the condition usually developing after the return of the mother to her own home. This figure is higher than was to be expected, as the percentage of all burgh births taking place in the hospital for the period under review was under 43 (45 for the past five years). To put it another way, 16% of women delivered in hospital developed mastitis, while only 3.5% of women delivered at home did so. There is a significant difference here, and these figures provide strong evidence in support of the view expressed by most writers that mammary infections occur more frequently in women who are delivered in maternity institutions. Although mastitis was found to be more common in primigravidae the high incidence in hospital patients would not be accounted for by this factor alone, as only approximately half the patients delivered in hospital were primiparous women.

TABLE III

	Hospital	Home	Total
Number of confinements	748 (42·7%)	1,003 (57·3%)	1,751
Number of mastitis cases	121 (77·6%)	35 (22·4%)	156
Percentage who developed mastitis	16·18	3·49	8·91

Time of Onset.—As records of the time of onset of mastitis usually come from maternity hospitals, and as hospital staffs may have no knowledge of cases occurring after the patients have been discharged from hospital, the figures may exaggerate the earliness of its appearance. According to Williams's *Obstetrics* (1941) the symptoms are rarely seen before the end of the first week of the puerperium, and as a rule not until considerably later. Moon and Gilbert (1935) found that the average time of onset in a hospital series was the eleventh day of the puerperium, varying from the fourth to the twenty-fourth day. The exact date of onset was known in 93 of these patients, and in 80 (86%) it occurred before the end of the second week. According to DeLee (1938) the parenchymatous (most common) type seldom begins before the seventh day, and most often occurs from the tenth to the twentieth day. Kerr (1941) says that the symptoms usually appear late in the

puerperium, often in the third week or later, while Macpherson (1943) found that 15 out of 26 cases (57%) occurred within one month of parturition. The authors of *Queen Charlotte's Text Book of Obstetrics* (1943) state that mastitis usually arises during the third week of the puerperium. Waller (1943) considers that 90% of acute abscesses of the breast occur within the first month after delivery. In the present series, in only 16 of the 156 cases (Table IV) did the first symptoms appear before the end of the second week, and in only four during the period normally spent in hospital. The highest weekly incidence was in the third week after delivery, and the latest time recorded was when the infant was 5 months old (two cases). Only 16 (10.3%) began before the end of the second week. This may be compared with the percentage of 86 given by Moon and Gilbert (1935); but their statistics related to a hospital series. The time of onset in our series was more in agreement with the views of DeLee (1938)—one-third of the cases occurring from the tenth to the twentieth day—and of the authors of *Queen Charlotte's Text Book of Obstetrics.* It should be noted, however, that, although the highest weekly incidence was in the third week, 45% of the cases occurred after the end of the fourth week.

TABLE IV

Time of Onset	All Cases	Cases Delivered in Hospital
During pregnancy	1	0
1st week	0	0
2nd week	15 } 16 (10·3%)	12 } 12 (9·9%)
7–10 days	4	
10–14 days	11	
3rd week	41	33
4th ,,	29	24
5th week	26	18
6th ,,	11	9
7th ,,	13	12
8th ,,	6	4
9th ,,	5	4
10th ,,	1	1
11th ,,	2	0
12th ,,	1	0
13th ,,	0 } 70 (44·9%)	0 } 52 (43·0%)
14th ,,	1	1
15th ,,	0	0
16th ,,	1	1
17th ,,	0	0
18th ,,	1	1
19th ,,	0	0
20th ,,	1	1
21st ,,	1	0
Total	156	121

Discussion

The incidence of mastitis (8.91%) found as a result of this investigation is much higher than is generally believed to be the case. It can be argued that the town concerned had a larger number of breast abscesses than other areas; but this argument would be difficult to substantiate, because comparable figures for other areas are not generally available. Most statistics are gleaned from hospital records, and these of necessity include only cases occurring early in the puerperium and in women delivered under the aegis of the hospital—intern or extern. They do not include cases arising after discharge from hospital or those of women delivered at home by the family practitioner or midwife. Chatillon (1941) admits this difficulty, and casts doubt on the value of low statistics from hospitals. He says: "We know by experience that a number of mammary infections begin only after the patient leaves hospital." Published figures probably, indeed almost certainly, underestimate for this reason. The incidence reported from other areas would no doubt be much lower than that found in this investigation, but it should be noted that if the investigation had not been carried out the incidence for the burgh as obtained from hospital statistics would have been much lower. The number of cases actually occurring in the maternity hospital and known to the staff of that institution was very small. Reference to Table IV shows that in only five instances did the onset occur before the tenth day of the puerperium (the usual time of discharge from the hospital), and only 16 cases (10.3% of the total) occurred before the end of the second week. The one other likely source of information was the general hospital of the town, and it was found that only 58 of the 156 cases had been treated in that institution. The others, apart from those in whom spontaneous evacuation had occurred, had had incision done either in their own homes or in hospitals outside the burgh. The claim can therefore be made that it was only because of this special investigation that the high incidence was brought to light.

The incidence may have been still greater than the figures given in Table I would suggest, as it is highly probable that even with the aid of the notification scheme some cases were missed and cases of non-suppurative mastitis were excluded. It is significant that when, for the purposes of another inquiry, some 250 women in the same town were carefully followed up for a period of six months after delivery, the incidence among them was even higher—viz., 25.1%—and a further 5.4% had a history of mastitis which subsided without abscess formation. It may be submitted not only that the compilers of hospital statistics underestimate the frequency because they do not know about cases occurring outside, but that notification under a scheme such as that instituted for this investigation also underestimates, although not to the same extent, because of "missed" cases.

To account for the large number of cases of mastitis occurring during the period under review the possibility of an epidemic must be considered. It is of interest to note that the maternity hospital was closed at the beginning of 1943 because of an outbreak of post-partum pyrexia and other signs of infection. On the other hand, the incidence of mastitis during this period did not show any unusual increase, and, after a short period of closure followed by more strict limitation of admissions, the maternity hospital had no further trouble. It should also be noted that the incidence of other infections in the burgh did not show any abnormal rise during 1942 and 1943. If the high incidence found was due to the investigation coinciding with an epidemic period it would seem that the epidemic was of considerable duration, and the matter can be cleared up only by further observations.

Another fact which emerged as a result of the investigation was that there was a much higher incidence of mastitis among women who had been delivered in hospital. It should be pointed out that only one hospital was concerned, and it is possible that some factor applicable to that one institution may have been partly responsible; for instance, owing to excessive demands on its accommodation the hospital was often overcrowded. There is no doubt that this high incidence among hospital patients merits deep consideration in view of the increasing tendency for confinements to take place in institutions. Probably the most important factors responsible for the undue prevalence among hospital patients are as follows:

1. *The Presence of Micro-organisms in Cases of Infection, in "Carriers" (Patients, Staff, and Visitors), in Dust, etc., to Which the Newly Delivered Woman has Not Acquired an Immunity.*—At the present time "black-out" conditions and deficient ventilation probably increase the importance of this factor, and, although the same "black-out" conditions exist in the home, they may not be so dangerous, owing to the patient being more resistant to any micro-organisms present.

2. *The Possibility that in Overcrowded Nursery Conditions the Infant Acquires Micro-organisms which are Later Transferred to the Mother.*—Henderson (1943) has shown that there is a high incidence of neonatal infection in maternity hospitals, that *Staph. aureus* is the commonest cause of such infection, and that staphylococcal conjunctivitis is much the commonest staphylococcal lesion. He considers that the causes of the high incidence are overcrowding of nurseries, absence of barrier nursing precautions, and inadequacy of nursing staff. Benians (1943) found in a maternity hospital that a high proportion of infants and people of all ages carry *Staph. aureus* in the anterior nares; almost 100% of infants in the nurseries of the hospital were nasal carriers at the age of 10 days, and the carrier rate among the nurses varied from 25 to 85%. In such conditions, especially when overcrowding of the nursery coexists, it seems to be extremely likely that an infant may leave the maternity hospital harbouring in the eyes, nose, or skin a strain of *Staph. aureus* to which the mother is not inured; the transference of these organisms to the breast of the mother during suckling would be almost unavoidable.

In order to minimize the risks of infection it is very necessary that in maternity hospitals or units attention should be directed to the provision of adequate bed-spacing (the Medical Research Council Subcommittee (1944) recommends that the distance between bed centres should be not less than 12 ft.), proper ventilation, avoidance of overcrowding, and the desirability of cubicle nursing for both mothers and infants. It is also advisable that there should be ample

window space, as Garrod (1944) has shown the bactericidal effect of light—even diffuse daylight; while van den Ende and his co-workers (1940, 1941a, 1941b, and 1941c) have demonstrated that oiling of floors and bedclothes reduces the number of dust-borne bacteria in a ward.

3. *The Tendency to Overcrowd Institutions.*—This may act in two ways—by increasing the chances of infection, and by reducing the time available for carrying out adequate prophylactic measures and for careful supervision of breast-feeding.

4. *The Rigid Hospital Routine of Feeding, with Unduly Long Intervals (Usually Four Hours) Between Feeds, thus Encouraging Stasis.*—This is probably an argument in favour of three-hourly feeding in the early days and also for feeding from both breasts at each feed. Moreover, there is the strict adherence to a time-table, so that the infant is kept for a fixed time at the breast, whether or not he is getting milk, thus tending to cause trauma of the nipple. Admittedly, more frequent feeding and more careful supervision during feeds would require a larger staff than most institutions possess at present.

5. *Malnourishment Predisposing to Infection.*—A further possibility to be considered is that the woman who is delivered in hospital belongs to a special type, perhaps of a poorer class and therefore more likely to be undernourished. Statistical information on this point is not available, but the impression is that the hospital patients in this series were representative of the population as a whole. Against this hypothesis is the fact that the results of this investigation showed that mastitis did not occur more often in women of the lower-income class.

To account for the fact that in this series most cases began after leaving hospital is difficult. It may be that so long as the patient is under supervision and strict precautions are being taken to prevent the entry of micro-organisms—such as by covering the nipple between feeds—the infection can be warded off. This prophylactic technique may, however, break down when the patient returns home, and infection may then occur. This would not explain why infection occurs less often in women delivered in their own homes, where, presumably, the same breakdown in technique is as likely to happen. Other possible explanations are a long incubation period for the infection acquired in hospital, infection of the mother by her infant after discharge from hospital, or that recently parturient women are discharged from hospital before the time of greatest susceptibility.

The maximum incidence occurred during the third week of the puerperium, and there would appear to be a strong argument in favour of retaining patients in maternity hospitals for a longer period than is the present custom or than is possible with the accommodation available. Women are discharged on the tenth day of the puerperium—or even earlier when there is a demand for beds—before lactation is sufficiently well established and at a period when great difficulty with the process is often experienced. At such a time, and before the mother has fully recovered from the confinement, the added strain and worry of going home to cope with household duties and a new infant, combined with lack of time to carry out the general routine of antisepsis learned in the hospital, may perhaps tip the balance and precipitate the onset of an infective process. It may seem inconsistent to point out that mastitis occurs much more often in women delivered in hospital and at the same time advocate that mothers should be kept for longer periods in hospital, but, once the mother is in hospital, there does not seem to be much to be said for discharging her before she is fully recovered in health and the process of lactation firmly established and secure.

Although the highest weekly incidence was in the third week of the puerperium, 45% of the cases occurred after the end of the fourth week. Cases occurring as late as this may well be missed by the compilers of hospital statistics having no cognizance of the results after the patients have returned to their homes, and this would apply even if the stay in hospital were extended beyond the present customary period.

Summary

Attention is drawn to the fact that most statistics relating to the incidence of acute mastitis are probably misleading and err on the side of underestimation.

An attempt to get some information regarding the true position in an industrial town of 43,000 inhabitants revealed an incidence much higher than is generally accepted. From information received under a notification scheme it was found that over a period of 28 months 156 women developed suppurative mastitis, giving an incidence of nearly 9%. It is suggested that any discrepancy between these figures and those published from other areas is due to the fact that the latter relate only to cases occurring in hospitals and early in the puerperium.

As comparable figures for previous years are not available there is no proof that the incidence has increased.

As a predisposing factor it was found that the place of delivery played an important part. Breast abscesses occurred in 16% of the women delivered in hospital and in only 3.5% of those delivered at home. While less than half the burgh births occurred in hospital, 78% of the notified cases had been delivered in hospital.

The onset occurred most commonly in the third week of the puerperium, but in 45% of the cases the first symptoms did not appear until after the fourth week of the puerperium.

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A FURTHER CASE OF PARANOID PSYCHOSIS SUCCESSFULLY TREATED BY ADRENALECTOMY

BY

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A special study of adrenal disease has been made at Charing Cross Hospital since one of us (L. R. B.) performed an adrenalectomy on a case of sexual precocity over 15 years ago. In 1933 Broster and Vines published a study of ten women suffering from virilism and showed a differential staining reaction demonstrating differences in the cortical tissue of normal and sexually abnormal individuals of both sexes. About this time it was noticed that women suffering from virilism were often abnormal—undersexed or homosexual, sometimes psychotic. The cases operated on, and new cases, were studied psychologically. These were published in full in Broster's *Adrenal Cortex and Intersexuality* in 1938. This work attracted the attention of Dr. R. D. Gillespie, who discovered a woman suffering from a severe schizophrenic paranoid psychosis combined with adrenogenital virilism. He was kind enough to send her to Charing Cross Hospital, and a study was made on the effect on her psychosis of removal of one of her adrenals. The result was a complete cure, which was published in full (Allen *et al.*, 1939). The woman showed a prepsychotic personality of schizoid, "odd-man-out" type. There was a previous history of telegraphist's cramp and exophthalmic goitre. She noticed hirsutism at 14, which spread by the time she was 18. When seen at 34 she was very hairy, and for the past six years had thought she smelt. This hallucination had increased, and she finally became so psychotic that she believed people were talking about her and certification was considered. An adrenalectomy was performed, and 12 days after it she had lost her hallucinations and had become heterosexually attached to her dresser, who had been kind and patient with her. Three weeks after the adrenalectomy she became confused for a few hours, but this passed away, and she has never had a recurrence. She has returned to her position in the Post Office (from which she

had been discharged and pensioned) and has continued to work there happily ever since.

We are fortunate in being able to present another similar case.

Case Notes

The patient comes from healthy Jewish stock. The father and mother are alive and well. One sister, aged 22, is a little hirsute, and a brother, aged 24, very hairy. There is no family history of neurosis or psychosis.

Personal History.—She is a good-looking brunette Jewess. Her birth was normal and she developed normally until 2 years old, when she had an attack of meningococcal meningitis in which she was unconscious and showed spinal rigidity, necessitating treatment in hospital for six weeks. She recovered, and started school at a normal age. A tomboy, good at games but below average at her lessons, her schooling was uneventful. She developed a facial tic on leaving school. There was strong masturbation guilt as a girl, and when she vomited after eating sardines, at the age of 12, she developed an obsessional fear of this recurring. When she left school she studied domestic science, disliked it, and transferred to a commercial college, which she enjoyed. She then entered her father's business and remained well till 1936 (aged 19), when she complained of pain in the right iliac fossa and a radiograph suggested appendicitis. The appendix was removed, but she still had abdominal pain. She had great anxiety over masturbation at this time, and became excited and upset, and could not sleep for a while. This passed off in time. She remained a little masculine in her interests: after leaving school she still played games, particularly cricket and hockey. Cosmetics were not used, and she smoked heavily after 21. Although she had one female friend, to whom she was attached, there was no overt homosexuality. At the age of 21 she went to her father and told him she had had two proposals from young men and did not know which to marry. Her father told her she must decide for herself, and she finally married a young man who worked in her father's business and who eventually became a partner. During her engagement she had a period of general restlessness and was depressed for a time. The phobia of vomiting increased and was accompanied by marked claustrophobia, with feelings of nausea, dizziness, and panic. These symptoms passed away before her marriage. This was successful, but there was no real sexual happiness, and she complained of having little or no orgasm.

There was no further illness until she went to a dance in Dec., 1940. This was at a Manchester hospital. There was an air raid, and the shelter in which they took cover received a direct hit from a bomb, killing a woman next to her. She was found running down a corridor, without her shoes, calling for her husband in a hysterical state. She was put in bed for three weeks, apparently recovered, and remained well till the autumn of 1941, when her previous symptoms returned with greater intensity and she complained of giddiness, inability to concentrate, obsessional fears of sirens, anxiety lest there should be further raids, abdominal discomfort, and sexual dissatisfaction. She insisted that something was wrong with her abdomen. On Feb. 4, 1942, she saw Dr. Henry Cohen, who diagnosed an obsessional psychoneurosis and recommended psychotherapy. He thought that her personality was schizoid, but found no psychosis present. As a result she was sent to the Cassel Hospital on Feb. 24, 1942. Unfortunately when she arrived she was inaccessible with blocking of thought, staring into space with inability to concentrate. Psychotherapy was impossible, so she was given electrical convulsive therapy (twice weekly—seven shocks in all), bellergal, and paraldehyde. She was discharged, with a diagnosis of a depressive state with schizoid and hysterical features, because of her suicidal impulses. Psychotherapy was then started by Dr. Cross of Manchester. She was accessible when treatment began—April 13, 1942—but rapidly became depressed, sleepless, and self-accusative. Treatment was abandoned on Aug. 4, as psychotherapy was impossible. She then saw Dr. Barton Hall, at Liverpool, who diagnosed katatonic schizophrenia and advised treatment at Crichton Royal Infirmary. She was transferred there in October. She had further electrical convulsive therapy—six convulsions—and insulin. She wore trousers and smoked heavily during her stay. She was attracted to another female patient, and attempted to caress, and make physical advances to, her. She was restless, complaining, vicious, overactive, and interfering: she tried to reorganize the wards. She left on Dec. 5, but took such a long time packing her clothes that she and her husband missed the train and were forced to spend the night at a hotel in Dumfries. They attended a dance in the evening, but she misbehaved and was noisy and obstreperous. It was with difficulty she was persuaded to return to their room. Sexual relations took place that night. When she arrived home she continued to behave badly, and was more or less uncontrollable; she destroyed all her underclothes, threw away the household goods, made a violent homosexual attack on a nurse in charge of her, refused to go to bed, and was almost impossible to manage. She again saw Dr. Barton Hall, who diagnosed her as a typical katatonic schizophrenic with flexibilitas cerea and attacks of katatonic excitement. She was therefore transferred back to Crichton Royal Infirmary, where she had further electrical convulsive therapy (six shocks). She improved, but still remained katatonic, hallucinated, and solitary. She was given further insulin therapy without effect.

In Feb., 1943, it was noticed that she had amenorrhoea, and an Aschheim-Zondek test was performed on the advice of Mr. Dewar, the visiting gynaecologist. This was positive, so it was decided, in view of the deterioration in the psychosis, that the pregnancy should be terminated. This was done on March 8, and an 8-weeks foetus was removed. She was still very psychotic and hallucinated, muttering to herself, so she was given further insulin therapy. She had 65 insulin comas between April, 1942, and July, 1943, but remained facile and fatuous, and behaved as a naughty child.

It was then noticed that she was becoming hirsute, and endocrine dysphasia was suspected. Mr. Dewar suggested that it was of pituitary or adrenal origin. Her pituitary was investigated but found normal. Dr. Hain, of the Animal School of Genetics of Edinburgh, tested her urine and showed pregnanediol in the merest trace. The ketosteroid excretion at various dates was: May 15, 1943, 21 mg. a day; July 29, 1943, 46 mg.; Sept. 28, 1943, 24 mg.; Jan. 18, 1944, 17 mg. (Average 27 mg. a day.)

Mr. Dewar advised 5 mg. of progesterone three times weekly. The patient improved during Sept., Oct., and early Nov., 1943, but unfortunately relapsed later in November and became grossly deluded again. She attempted suicide by drinking petrol. The progesterone injections were continued without apparent effect, either physical or psychological. She tried to make a further homosexual attachment to another patient, but was separated from her. On Jan. 19, 1944, Dr. Wislicky, her private doctor, asked for her to be examined with a view to adrenalectomy, and this was kindly permitted by Dr. McCowan, the superintendent of Crichton Royal Infirmary, and by Dr. Meyer Gross, under whose care she was there. She was seen on Jan. 19.

Physical Examination.—She was a well-built woman of 26 years, dressed in a pullover and trousers. Her hands were stained with nicotine. Her cheeks had a high natural colour with thick down on them, as well as on the upper lip and chin. There was coarse, thick hair on her thighs and legs, but not so thick on the arms and forearms. There were tufts of hair on the dorsum of the toes but not on the backs of the fingers. The hair had a masculine distribution over the abdomen and some stretched up to the chest. The fat distribution was masculine in type; the buttocks were more masculine in shape than feminine, but this was not marked. She was strong, without the very developed musculature observed in these cases. No abnormality was detected in any system. Her nervous system was perfectly normal from the organic point of view. Her blood pressure was 120/80.

Psychological Examination.—She was accessible, co-operative, and behaved well while examined. She said she felt ill but properly orientated, and appreciated she was being examined to help her to recover. She stated that she was worried by airplanes, which gave her electric shocks when they flew over, and vaguely connected this with her wiry hair. She said spontaneously that she was hallucinated and heard "voices" saying obscene words to her. She often missed the thread of conversation, and this she explained as due to the "voices" distracting her attention. She had feelings of influence, and felt she knew also what people were thinking. She said she attempted suicide because she was Jewish and people hated the Jews, but had no antisemitic delusional symptoms. Her mood was gloomy but not depressed or anxious. She said her voice was more masculine, and she wore male clothes. She felt she was deteriorating and wished for treatment. Insomnia worried her. A diagnosis of schizophrenia in a woman suffering from adrenogenital virilism was made. She was transferred to Hampstead and examined there. She was extremely suspicious and confused, and stared absentmindedly into space. She spoke slowly and with hesitation. In view of her physical condition it was decided she was suitable for adrenalectomy. A laparotomy was performed on Feb. 21, 1944, and the left adrenal was found to be the larger of the two. The left ovary was fibrotic. A month later an adrenalectomy was performed. The pathologist reported that "the cortical cells showed the presence of a large amount of granular red staining material (ponceau-fuchsin stain)." A further specimen of urine taken two weeks after operation showed that the excretion of ketosteroids had dropped from 27 mg. to 7.2 mg. a day. Surgically this patient was typical of Group II virilism. Her hair could be pulled out easily, and in three months her period had settled down regularly to three to four days in a 28-day cycle.

Post-operative Findings.—The patient was re-examined on March 30, 1944. The improvement was striking. She stated she was thinking better and felt she would improve further. There was more insight. The hallucinations had gone, although she was still inclined to day-dream. She had lost her delusions and no longer felt "electric-shock" sensations when airplanes flew over: this was remarkable, as there were constant air raids at the time. She talked more freely and was less taciturn. She was more feminine and took more interest in her surroundings. Her mood was brighter and she welcomed visitors. She continued to improve. The daily steroid

output fell from 30 mg. to 7.2 mg. She was well psychologically, although on April 6 she complained of some pain over the right iliac fossa and was passing jelly in her urine. This was investigated and found to be of no significance. (It should be noted that the previous case also had a short period of confusion three weeks after her adrenalectomy.) Her husband was seen at the time, and was very happy over the result. She complained that she had "no decent clothes to wear" and spent the remaining time in the nursing home going out with her husband, visiting cinemas, dancing, and improving her wardrobe. She worried over running a house and over the "points" system of rationing. In fact, her conversation was that of any intelligent woman suddenly faced with the difficulties of wartime life after years of isolation. She has been seen twice since her operation, and still maintains her recovery. On Nov. 2, 1944, she wrote to say that she was spending her time shopping, cooking, and housekeeping, and drove her husband's car when possible. The letter was that of a perfectly normal person—which indeed she now is.

It is of interest to note that this is the sixth case in which adrenogenital virilism has been combined with a psychosis, and the fourth in which the psychosis was schizophrenic in nature. The response to adrenalectomy was exactly similar in the previous case we were able to observe before and after operation. The fact that this patient was given the finest treatment (apart from adrenalectomy) suggests that these cases are unlikely to respond to ordinary therapy.

Summary

A further case of adrenogenital virilism combined with a paranoid psychosis is recorded.

These conditions occasionally arise together, and the occurrence of a syndrome, though of necessity a rare one, is possible.

Adrenalectomy appears to be successful in a certain number of cases.

As this condition does not seem to respond to other forms of treatment adrenalectomy should always be considered.

We are grateful to Dr. Wislicky of Manchester, Dr. P. K. McCowan, superintendent of Crichton Royal Hospital, and Dr. Meyer Gross for kindly allowing us to see this case, and for the use of notes and photographs; also to Dr. H. W. C. Vines, pathologist to Charing Cross Hospital, for allowing us to report his findings.

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HYPERTRICHOSIS WITH MENTAL CHANGES

THE EFFECT OF ADRENALECTOMY

BY

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The following case of hypertrichosis associated with mental changes, which gradually resolved after adrenalectomy, may be considered worthy of record for its psychiatric interest.

A married woman aged 25 was admitted to hospital on Feb. 1, 1944, under Dr. V. E. Lloyd-Hart and referred to A. S. P. and to R. G. for investigation. She had always, according to her mother, been somewhat introspective, imagining herself to be more seriously ill than others believed her to be. She was married to a soldier, then in Italy, with whom her relations had not been altogether happy owing to his alcoholic habits, but this worry had been relieved from the time he had joined the Army over a year before. Her mother, with whom she lived, was an invalid with an irreducible hernia who suffered from hysterical fits. The patient's young son had severe asthma, which often disturbed her at nights. She remained well until March, 1943, when she had an attack of cough with pyrexia. From that time she began to complain, to a steadily increasing extent, of a roaring and buzzing in the ears, "pins and needles" all over, nausea and abdominal pain, sudden feelings of exhaustion during which she contemplated suicide, insomnia, and a feeling of extreme tenseness and tremulousness. During the five months before her admission all these symptoms became worse, and in addition she began to perspire excessively and offensively. Acne and an inordinate growth of hair made their appearance. Her complexion became sallow and her weight dropped from 9 st. 7 lb. to 8 st. 3 lb. Her breasts became smaller and her menstruation, which had always been somewhat irregular, became scantier and less frequent, appearing for two days at intervals of 24 to 45 days.

On examination she was found to be a thin, sallow dark-haired woman looking 10 years older than her age and with a permanent expression of discontent. There was an excessive growth of hair on the arms, forearms, back of the hands, thighs, legs, and face. The pubic hair was feminine in distribution but excessive. Acne was present on the face and back. The blood pressure was 145/85 and the pulse rate varied between 72 and 100. The breasts were flat and deficient in glandular tissue. Otherwise nothing abnormal was found on ordinary clinical examination. Psychiatric examination revealed a tense hypochondria rather than a true depression. The patient had had certain worries, as already described, but the resolution of some of these had not resulted in any improvement in the hypochondriacal state.

The following further investigations were performed. Glucose-tolerance test: Resting blood sugar 79 mg. per 100 c.cm.; after 50 g. of anhydrous dextrose, half-hourly values of 133, 143, 116, and 108 mg. per 100 c.cm. Blood count: Haemoglobin 110%, R.B.C. 6.2 millions, W.B.C. 7,000. Androgen excretion (Dr. Lloyd Warren): 21 mg. of 17-ketosteroids a day. Perirenal insufflation (R. G.) suggested slight enlargement of the left adrenal gland, but was not conclusive.

A diagnosis of adrenal virilism was made, but in view of the indefinite skiagram she was discharged and readmitted a month later. Perirenal insufflation then seemed to show an increase in size of the left adrenal—an appearance which was actually illusory. The 17-ketosteroids had increased to 33.8 mg. a day. Operation was therefore advised.

At operation on April 21, 1944, the abdomen was explored through a transverse incision extending from just above the umbilicus to the 10th left costal cartilage. After palpation of the pelvic organs had excluded any gross abnormality the peritoneum was closed and the left adrenal identified and removed extraperitoneally. The extraperitoneal removal was helped by high spinal analgesia and the use of diathermy; it was made very easy by the extreme thinness of the patient. The gland was macroscopically normal. The usual precautions against shock were instituted (eucortone before operation, intravenous saline, and repeated blood-sugar estimations for the first 48 hours after operation), but her post-operative condition never gave rise to any anxiety.

The preliminary perirenal insufflation had excluded an adrenal tumour on the right side, and it was therefore possible, by the use of a transverse incision, to combine the essential preliminary exploration of the abdomen with the removal of the affected adrenal. This saved the patient a second operation. Histological examination of the adrenal gland showed a positive reaction to the ponceau-fuchsin stain.

A few days after operation the limbs were shaved, but the hair on the face was allowed to remain. During the next few weeks it gradually disappeared. Two months after operation she looked much more youthful. There was no sign of further growth of hair in the shaven or unshaven areas. She was still rather tense and anxious, and complained, though with less insistence, of indigestion. The noises in the head were now intermittent and were increased by solitude, inertia, and worry. She had not menstruated since the operation.

Eleven months after the operation a remarkable change was found. She looked her age—10 years younger than before the operation. Her weight had risen to 8 st. 9½ lb. Her complexion was no longer sallow, but a normal pink and white. There was no acne or hypertrichosis, though she had not shaved or used a depilatory. Her habitual frown had given place to a ready smile. After three oestrogen withdrawal bleedings had been induced, regular menstruation had begun and had occurred for the last five months without any further treatment. The noises in the head were now absent for long periods and were only occasionally brought on by worry. She was no longer tense, and considered herself to be psychologically normal. Her parents said that she had ceased to be self-centred and that she no longer "played up" or talked about her ailments. They were most impressed by her youthful appearance. Her 17-ketosteroid excretion was now (April 27, 1945) 18.8 mg. a day.

Discussion

The association between adrenal virilism and mental change is discussed by Allen and Broster in their paper on page 696 of this issue. The case here described is of considerable psychiatric interest. The psychological changes preceded the external physical changes. When first seen the patient was drifting into a tense hypochondriacal state in which at times she wished for death. The removal of most of the real causes for her anxiety did not bring about her recovery. This state is notoriously difficult to influence by psychological means.

Only after operation was she set on the road to recovery. It is noteworthy that the insomnia, dyspepsia, and the morbid habit of magnifying the noises in her head did not disappear immediately after the operation but improved over a number of months concurrently with the remarkable change in her appearance. It seems reasonable to suppose that the rejuvenating effect of the operation enabled the patient gradually to emerge from her hypochondriacal state.

TREATMENT OF IMPETIGO

THE VIRTUES OF CALAMINE LINIMENT AND SOME MINOR DRAWBACKS OF LOCAL SULPHONAMIDE THERAPY

BY

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No one with experience of treating impetigo can fail to have been impressed at some time or other by the disastrous effects of using a remedy to which the patient's skin happens to be intolerant. First of all there is the major disaster of sulphonamide sensitization, in which the unlucky patient, after weeks or months of treatment, finds himself sensitized, perhaps incurably, to exposure to ordinary daylight, not to mention half a dozen of the potential irritants of a chemical nature he may have encountered during his illness.

But we are not so much concerned with dangers that are well known as with the accidents of therapy that may conceal their nature under the guise of an intransigent malady that persists in getting worse in spite of our treatment, or that somehow just does not get well. Such events are much more common than may be imagined. It is always well to remember the four things that a given local treatment can do: it can, of course, do nothing at all; it can make the disease better; it can make it worse; and it can prevent it from getting well.

It is the last possibility by which one is so often deceived. We therefore venture to draw attention to a mode of treatment which, incidentally, we claim to give results superior to all others in our own hands, but which also has the great virtue of avoiding the application to the skin of antiseptics or other substances capable of irritating it or giving rise to sensitization. Its main disadvantages are the extravagant use of dressings and the need for considerable skill and care in their application; but these are decisively outweighed by the reduction of the time spent in hospital, and the entire avoidance of disastrous sensitization phenomena.

The Calamine Liniment Method

Our method rests on six principles: (1) The free exposure of all parts to treatment—by shaving, if necessary. (2) The avoidance of trauma (apart from that occasioned by shaving). (3) Ensuring that the dressings are kept in close apposition with the affected parts, and that they remain moist. (4) That they are removed only for the few minutes necessary for shaving or re-dressing, and immediately reapplied. (5) That every outlying lesion is included in the treatment and that the dressing extends an inch or so beyond the affected area. (6) Finally, that the method of applying the remedy is altered as occasion demands—e.g., from compresses to smears—not the remedy itself.

Since each of these principles is of importance and neglect to observe any one may result in failure, we feel justified in entering into more detailed explanation of some of them.

Exposure of Affected Parts.—Ruthless shaving is, in our opinion, the key to success. On admission all hairy areas which are crusted are shaved, no matter how raw. To offer a little protection to the tender area, and to aid in softening the crusts, the parts are first anointed with lanette wax base; a lather of soap and water may or may not be used. No attempt should be made to save the hair of the scalp or eyebrows if involved. They should be thoroughly shaved, as even a small tuft of hair overlooked will delay cure. The eyebrows grow rapidly, and in the presence of persistent crusting it may be necessary to re-shave. Over the bearded region this should be done every second day.

Lanette Wax Base

Lanette wax	10 parts
Vaseline	10 ,,
Water	ad 60 ,,

Modified Calamine Liniment (to economize oil)

Adeps lanae	2½ oz.
Lanette wax	2½ ,,
Calamine	3½ ,,
Olive oil	20 ,,
Water	ad 80 ,,

Avoidance of Trauma.—To shave and to avoid trauma are apparently contradictory instructions. The damage caused by shaving is outweighed by the rapid healing which results from the closer contact secured for the dressing. Apart from shaving, no attempt is made to encourage the removal of crusts. Those crusts which do not separate readily and come away with the first dressing are not interfered with, as they seldom fail to do so with subsequent dressings, leaving a surface rapidly healing or healed.

Dressings.—For the dressing to be effective the closest contact is essential. Folds of gauze, four to eight layers thick, are completely saturated with calamine liniment and moulded on to the affected parts. Apposition in the natural folds is secured by packing and firm bandaging. The ear presents special difficulty. Several layers of gauze in the form of a tape are well saturated and tucked into all the natural folds and crannies of the ear. A similar dressing is made to encircle the ear to prevent the fissuring which so readily occurs at the upper and lower poles and in the retro-auricular fold. Unfortunately the ear dressing sometimes causes earache. To obviate this a dry plug of cotton-wool is inserted into the meatus and changed with each dressing. If the skin infection extends into the meatus the plug can be saturated with the liniment. To reach the deeper parts, otherwise inaccessible to dressing, a drop of cod-liver oil can be instilled. This relieves discomfort. An ear-cap of saturated gauze should be applied to keep the dressings in position. The response to this careful dressing is dramatic, and all crusting disappears in 24 to 48 hours. Subsequently the liniment can be simply smeared on without any dressing to cover it.

After discharge the patient is advised to wash or shave over a protective layer of lanette wax base or calamine liniment for a few days.

There still remain a few points on technique to be mentioned. First, the use of jaconet as a covering dressing. By retaining moisture, this economizes labour and material. Twice-daily treatment has sufficed, and fewer layers of gauze are required. Hot weather and the presence of acute inflammation are contra-indications to the use of jaconet. It is essential at all times that the dressings remain moist; otherwise, by adhering, they may cause damage.

Pitfalls leading to failure arise from insufficient padding of the natural folds—e.g., fold of chin, angles of mouth, naso-labial folds, and bridge of the nose—and from bandaging that is not firm enough to keep the padding in position. If the angles of the mouth are involved it is an advantage to apply to the upper lip a dressing which is overlapped at the angles of the mouth by the firm lower-jaw bandage. The naso-labial folds should be treated in the same way as the folds of the ear—with a tape dressing. Bandaging must be firm, and to achieve this two half-masks, consisting of goggles and a four-tailed bandage for the chin, are preferable to one face-mask, which would tend to sag in places. The eyebrows also need particular care, and a specially thick firm dressing to ensure the rapid removal of all crusts. Liq. tinctor. applied twice daily to the eyelids will deal effectively with any lesions too close to the eye for bandaging.

The main points in the management of the case have now been dealt with. There is, however, one other item of supreme importance—that of not lightly changing treatment. One change is apt to lead to numberless others, until the medical officer and skin are both bewildered—the skin finally refusing to tolerate treatment.

Comparison with Sulphonamide Treatment

The method just described was elaborated by us towards the end of the period during which the local treatment of pyodermia with sulphonamides was fashionable, and we cannot dismiss the subject without further reference to that popular form of treatment. In a series of 643 cases, comprising 364 of impetigo and 279 of infective dermatitis, we recorded, with reference to the local treatment received before admission, the length of stay in hospital before the patient was fit for duty or for discharge into civilian life.

Of the cases of impetigo which had a general average stay in hospital of 14.5 days, 84 had been treated with sulphonamides for an average of 22 days; of the rest—some of which we ourselves treated with sulphonamides, some with calamine liniment, and some with other remedies—the figures were 11.4, 10.8, and 12.6 respectively. Of the cases of infective dermatitis, 63 which had been treated elsewhere with sulphonamides took 28.1 days on the average to get well, as compared with 18.6 days for the rest. It will be seen from these figures that the average duration of stay in hospital of the cases we ourselves treated with sulphonamide is scarcely longer than that of the cases treated with calamine liniment. Selection played a part in this. Mild cases for which expenditure of large quantities of liniment and dressing appeared extravagant, and cases of the types considered especially amenable, were treated with sulphonamides, while all the more severe ones had calamine liniment. Nevertheless, we feel it necessary to set out once more in tabular form the advantages and disadvantages of the two methods:

Local Sulphonamides	*Calamine Liniment*
1. Ease of application (as thick smears, twice daily)	1. Elaborate procedure requiring care and skill
2. Economy—no dressings required	2. Initially extravagant in material—saturated dressings, jaconet, bandages, etc., but smears only later
3. Aggravation of local condition encountered not infrequently	3. Aggravation rarely if ever encountered; almost foolproof
4. Risk of delaying response to subsequent treatment	4. No such risk; a favourable preparation for subsequent treatment
5. Experience required in choosing the type of case likely to respond straightforwardly to treatment	5. No such experience required
6. Limited safe period of use, 5–7 days; beyond that, increasing risk of sensitization	6. Unlimited safe period
7. Risk of later serious after-affects: (1) sensitization to light; (2) sensitization to sulphonamides	7. Safe treatment; no bad after-effects

Summary

Antiseptics are not necessary in the successful treatment of impetigo. The use of any of them—mercurials, dyes, sulphonamides, etc.—entails the risk of disastrous aggravation of the disease. Unsuccessful treatment with sulphonamides, quite apart from obvious sensitization phenomena, makes subsequent cure more difficult. A method of treatment with a simple calamine liniment is described and recommended for use in severe cases of all kinds of impetigo and infective dermatitis.

We are indebted to Lieut.-Col. Wilson for his interest and the suggestion of extending the application of calamine liniment to the external meatus in the presence of otitis externa; to Major Twiston Davies, command dermatological specialist, for his untiring help in preparing this paper; and to the nursing staff, especially Sister Joyce, who suggested the ruthless shaving.

The Malta Health Report for 1943 appears over the signature of Dr. A. V. Bernard, Chief Medical Officer. During the period under review there was a rapid and substantial improvement in the public health of Malta and Gozo. Although overcrowding was worse than ever and environmental sanitation far from perfect, the special attention paid to maternal and infant welfare work, the small incidence of infectious disease, and the use of sulphonamide drugs in treatment of respiratory and intestinal infections all helped in reduction of the death rate. Antidiphtheria inoculation brought down the mortality from this disease to the lowest for nineteen years. The slaughtering of many goats during the siege and pasteurization of milk resulted in a lower incidence of undulant fever than ever before. Only one case of indigenous malaria (benign tertian) was observed. War casualties were 5.7 per 1,000 of the population. An explosive outbreak of typhoid fever followed percolation from a bomb-damaged sewer into one of the main water reservoirs. Subsequently an Order was issued for compulsory inoculation. This is the last of a series of reports which deal with actual war conditions in Malta.

Medical Memoranda

Expulsion of Ectopic Foetus per Rectum

It is a rarity for a foetus to be expelled per rectum, and fo this reason this case is being reported.

CASE REPORT

The patient, aged 28, came to the hospital complaining of acu abdominal pain, abdominal swelling, and obstinate constipation Just before admission she had a severe uterine haemorrhage afte a period of three months' amenorrhoea. With this bleeding ther were vomiting and inguinal pain. Previously menstruation, whic started in her fourteenth year, had always been regular. In th year she married and for ten years she remained sterile. He husband died and she remarried.

On admission the temperature was normal and the pulse 90. The patient was pale. Abdominal examination revealed a hard mas rising out of the pelvis and reaching half-way to the umbilicus. Per vaginam the uterus was found to be anteflexed, and the fundu was felt one finger above the pubis. The portio vaginalis wa conical and the cervix closed. The posterior fornix was distende by a hard mass separate from the uterus and filling the pouch o Douglas. Posterior colpotomy was performed, but no discharg followed this. Pelvic haematocele was diagnosed and the patie treated conservatively. For six days the temperature remained 39° C. As there was no improvement operation was advised, b the patient refused and left hospital.

A fortnight later she returned complaining of rectal haemorrha and stating that she had passed a foetus per rectum two da

previously. The foetus (see photograph) was 9 cm. in length a mummified. On rectal examination a fistula could be felt, 3 c in diameter, on the anterior wall about 7 to 8 cm. from the an Through the fistula the finger entered the large sac of the haematoce There was a blood-stained blackish discharge. For 22 days t temperature varied between 37 and 38° C. At the end of this ti she was examined again. The uterus was deviated to the left, t the left fornix was normal. On the right side there was a m the size of a fist, attached to the pelvic wall. The patient made uninterrupted recovery.

From the literature available there has been a similar ty of case reported (Binagh and Bardi, 1929), but the whole the foetus was not expelled per rectum.

Smyrna Hospital H. Y. BASKAM

REFERENCE

Bi.agh and Bardi (1929). *Semara'n.éd.*, 3€, No. 5.

Reviews

ENDOCRINOLOGY OF WOMAN

Endocrinology of Woman. By E. C. Hamblen, M.D., F.A.C.S. (Pp. 571; illustrated. $8.00 or 58s.) Springfield: Charles C. Thomas; London: Baillière, Tindall and Cox. 1945.

The war, by slowing down research in sex endocrinology, has, as Prof. Hamblen points out, provided an opportunity for an appraisal of the results of the spate of experimental work of the pre-war years and for assessing the value of the various discoveries when applied to clinical medicine. This book, which he has written in place of a second edition of his previous work *Endocrine Gynecology*, takes full advantage of this opportunity and is an admirable survey of the field. There are many books on the subject, but this is one of the best. It differs from others in that it has a broader outlook and puts the reproductive system in its proper perspective, paying due attention to other systems and bodily processes, such as growth and metabolism, which are affected by hormonic processes. All the glands with an internal secretion—the pancreas, thyroid, thymus, parathyroids, pineal, in addition to the pituitary, gonad, and adrenal—are considered. Moreover the importance of the endocrine system is not overstated, nor the place and value of hormone therapy. Prof. Hamblen does not allow enthusiasm for his specialty to affect his clinical judgment, and how pleasing it is to find simple common-sense treatment of a non-endocrine nature recommended in place of more fanciful and expensive types of hormone therapy of questionable value. Theories without sound foundation, conflicting views, and unconfirmed findings are mostly omitted, so the book is essentially a practical one. References are made only to articles written in English. It is, as claimed, "streamlined," but it remains a moderately large book for the reason that it contains a wealth of detailed information, presented in well-ordered and attractive manner. There are few matters which fall within the orbit of its title to which reference is not made.

The book is divided into five sections. The first deals in turn with the various glands—their development, anatomy, histology, function, and interrelationships, with an account of the chemistry and actions of their hormones. Each chapter is introduced by an outline of the history of the main discoveries regarding each gland. The second part is concerned with sex differentiation and the behaviour of the endocrine system during intra-uterine life, childhood, maturity, and the development and retrogression of reproductive activity. The clinical investigation of both the adult and the child, special tests and diagnostic procedures, blood and urine chemistry occupy the third section, while the last two deal with functional diseases of the various glands and endocrine therapy respectively. Throughout there are good diagrams and illustrations, and most helpful tables showing differential diagnosis, hormone levels in body fluids, etc.

The book bears the imprint of a strong personality, which comes to the surface more particularly in the clinical sections. This gives it an impressive sincerity and honesty but has the disadvantage that some views and types of treatment, though generally accepted, are not described because they do not meet with the approval of the author. Thus all forms of androgen therapy for any condition in woman are only mentioned to be condemned. This attitude may prove correct, but it is doubtful whether the present state of knowledge justifies it. Again, there are few who would agree that the use of oestrogens for the suppression of lactation is unnecessary and that the older methods of a binder and purgation are equally efficient. But there are not many examples of this type which could be quoted, and to compensate for them is the fact that every form of treatment recommended has been used personally by the author.

Prof. Hamblen in his preface says the book is intended for undergraduates as well as the newly qualified, but that is to underrate its scholarship. It is more suited to the gynaecological specialist, who not only will find in it an easily assimilated summary of all that is of practical value in recent developments in the endocrine field but will also wish to keep it for reference when dealing with any unusual and difficult case. Even those who already possess a reference book of this type would do well to read it if only because of its well-balanced outlook and its critical and rational approach to the subject.

RADIOLOGICAL PHYSICS

Physical Foundations of Radiology. By Otto Glasser, Ph.D., Edith H. Quimby, Sc.D., Lauriston S. Taylor, Ph.D., and J. L. Weatherwax, M.A. (Pp. 426; illustrated. 25s.) New York: Paul B. Hoeber, Inc.; London: Hamish Hamilton.

The four authors who have collaborated in the production of this textbook of radiological physics have kept in mind the needs not only of the young postgraduate preparing for a radiological diploma, but also of the more senior radiologist whose mind cannot so readily absorb modern physical concepts. In four chapters Glasser summarizes the history of radiology, the fundamentals of corpuscular and electromagnetic radiations, and the modes of interaction of radiation and matter. Weatherwax gives the essentials of electricity and magnetism, and their application in the different types of high-voltage generators and *x*-ray tubes; he also contributes an excellent chapter on the physical principles of *x*-ray diagnostic procedures. Taylor deals with the measurement of *x*-ray quantity and quality, and the chapter on protection will be of especial value to anyone installing a new apparatus or designing a new department. Quimby's contributions cover the whole field of radiotherapy and are full of suggestions which would improve the practice of even the senior radiotherapist; for example, the Table of Errors in Dosage on page 241 stresses the importance of measuring every physical factor as accurately as possible, for even so the dose given to a patient may be 20% out from what was intended. Her chapters on biological effects and on therapy records are particularly valuable, and there is also a full appendix of depth-dose tables.

The book is a model of lucidity and compression, and is free from misprints except for the transposition of the symbols D_s and D_n on page 211; the references are well chosen and up to date, and the index complete; it should certainly be kept close at hand in every radiotherapeutic department.

A MEMOIR OF DAVID EDER

David Eder. Memoirs of a Modern Pioneer. Edited by J. B. Hobman. Foreword by Sigmund Freud. (Pp. 215. 8s. 6d.) London: Victor Gollancz. 1945.

This is a biography and appreciation of a remarkable man. A Jew born of parents in comfortable circumstances, David Eder found the study of medicine not altogether compatible at first, but once qualified he grew into an impassioned socialist, which was reflected in practical work in the East End of London, where he became one of the pioneers of the school medical system. This, however, was only after a period of medical officership in the revolution-ridden Republic of Colombia and far up the Amazon, where he got involved in the war between Brazil and Bolivia. Later he fell under the influence of Freud and Ernest Jones, then in Canada, and became one of the pioneers of psycho-analysis in this country.

Always concerned with the welfare of his race, Eder became closely involved in the Zionist movement at the end of the last war after the Balfour Declaration in 1917. He spent four arduous years in Palestine, and then came back to a busy psycho-analytic practice in London, where his broad humanity and wide knowledge of the world and its inhabitants stood him in good stead. For all his socialistic and Zionistic aspirations, however, he was not an optimist, as is shown by his final address as president of the Medical Section of the British Psychological Society, in which he attributes the hopes of progress so widely shared by the human race to a fantasy of victory over the universal aggressiveness with which we are born.

Appreciations of his activities as a socialist doctor are written by Harry Roberts; as a psycho-analyst by Edward Glover, who also analyses his character on psycho-analytic grounds; and as a Zionist by Leonard Stein and Sir Wyndham Deedes. Prof. Freud's appreciation of Eder's work is expressed in a foreword and several letters. This book is one which may be read in moments of relaxation with interest and a considerable amount of instruction.

Notes on Books

The 7th edition of Dr. PALUEL J. FLAGG'S *The Art of Anaesthesia* (J. B. Lippincott Company; 36s.) is a dogmatic, and therefore valuable, presentation of the subject, in a style redolent of the author's forceful personality. Brief descriptions are included of new anaesthetics and methods, but the author maintains with vigour that, because ether is the safest anaesthetic known, skill in its administration should be the first concern of every anaesthetist.

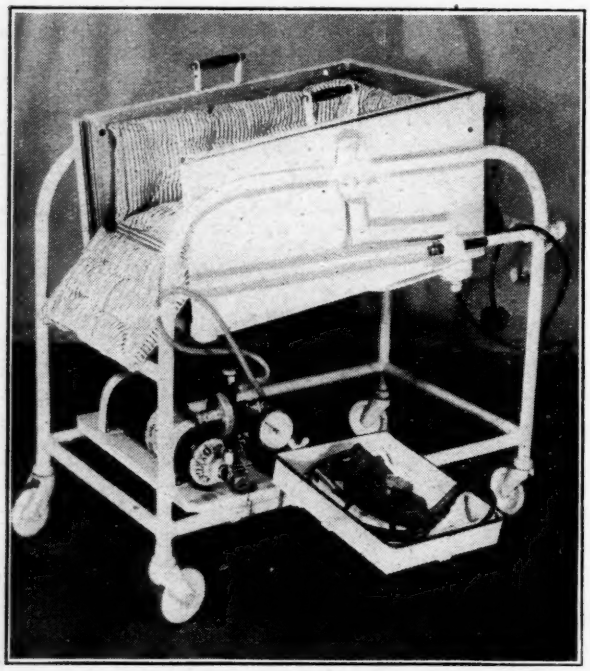
A new pamphlet entitled *Making Work Lighter*, the sixth of the series of Lighting Reconstruction Pamphlets, has been issued by the Illuminating Engineering Society, 32, Victoria Street, London, S.W.1. With comic illustrations in colour by Fougasse it differs in style from the preceding ones, and is intended primarily for distribution to all concerned with industrial lighting. The price is 6d. a copy.

Preparations and Appliances

A NEW ELECTRICALLY HEATED BABY'S COT

There has recently been put into service, at the Middlesex Hospital Maternity Department, an improved type of electrically heated cot. A feature of this cot is that the heating element is thermostatically controlled so that the temperature of the mattress and the bedding can be maintained at a uniform predetermined level, anywhere within the range of 60°–120° F.

The cot consists of two rectangular-shaped metal boxes placed one inside the other, both suitably flanged so as to form an adequate air space in which the heating element and thermostat are housed. The inside box is provided with ventilation holes in such positions as to ensure that a continuous current of warm air flows to the specially designed mattress, also box-shaped, which rests on a miniature bed spring. To prevent the mattress becoming scorched through contact with the metal, the cot is lined with heat-insulating material.



The "head" ends of both boxes are fitted with removable slides which permit of the baby being resuscitated by means of intubation, using the Gibberd and Blaikley apparatus, or having such treatment as may be necessary without its being lifted out of the cot or being otherwise subjected to a change of temperature.

The cot is attached to a trolley by means of two bearings, which incorporate the well-known Middlesex tilting device. The trolley is equipped with four ball-bearing castors, a rack for an oxygen cylinder, and a small tray for instruments. When not in use the tray, which is mounted on a pivoted stand, can be tucked away underneath the cot.

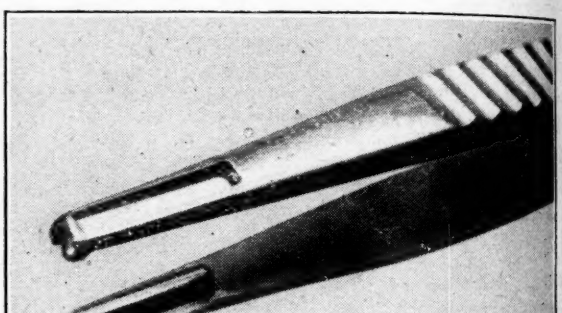
The apparatus, which was designed by Miss M. Williams, sister-in-charge of the maternity department, was constructed in the Middlesex Hospital workshops. The photograph shows the trolley with the cot "head" end removed.

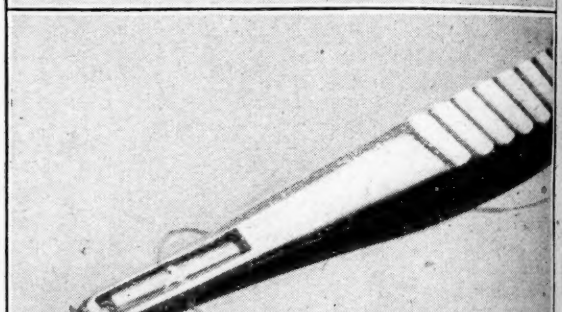
NEW DISSECTING FORCEPS FOR "NO-TOUCH" TECHNIQUE

Major JOHN CHARNLEY, R.A.M.C., writes from the Orthopaedic Department, Shaftesbury Military Hospital:

Few dissecting forceps will grip suture material positively enough to make them suitable for tying knots in "no-touch" technique. The heavy finger pressure often needed soon tires the surgeon's fingers, and in some forceps the jaws may even open again and release the suture if excessive pressure be used.

The transverse serrations found behind the terminal teeth of an ordinary pair of toothed dissecting forceps are really of very little value in holding tissues; the efficiency of such an instrument depends on the design of the terminal teeth. When used in an attempt to tighten a knot the transverse striations lie parallel to the line of pull and thus allow the suture to slide and probably lacerates it, if it is soft catgut.





When the forceps illustrated are used as tissue forceps they work quite naturally on their terminal teeth; when used to tie a knot the suture is trapped in the fenestrum by the projection on the opposing blade. The suture material is therefore made to execute four right-angle bends within the grip of the jaws.

In practice the instrument holds wet catgut as delicately and powerfully as could be wished. It holds all other suture materials well, whether wet or dry, and is outstanding in performance with nylon. The best results are achieved when the habit has been learnt of deliberately seizing the suture some distance behind the point to ensure that it is well held in the trap. The soundness of the grip under the lightest finger pressure is impressive.

The present model is built on sturdy lines because it was essentially designed for bone work, but doubtless Messrs. Downs Bros., who have so easily surmounted the difficulties of the original design, could make others on a lighter scale.

Watson and Sons (Electro-Medical) Ltd., whose temporary head office is 76, Castle Street, Reading, have issued a leaflet on a new apparatus for the location of foreign bodies in the eye, which was developed in conjunction with Group Captain J. F. Bromley, consultant in radiology to the R.A.F. A full description of the apparatus appeared in the *Transactions of the Ophthalmological Society*, Vol. LXIII, "An Apparatus for Localizing Foreign Bodies in the Orbit," by J. F. Bromley and T. Keith Lyle.

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SYNTHETIC OESTROGENS AND CANCER

Not long after it had been announced that stilboestrol had some effect on the course of prostatic cancer, practitioners, acting on the assumption that cancer is a unity, give stilboestrol in other types of the disease, notably of the breast. Following desultory correspondence in the columns of this *Journal* the treatment of mammary carcinoma with stilboestrol was discussed at the Royal Society of Medicine,[1] and a committee was formed, with Prof. E. C. Dodds as chairman and Dr. Alexander Haddow as vice-chairman, to investigate the subject further. Not long afterwards we published two papers by Dr. Haddow and his colleagues on synthetic oestrogens and malignant disease.[2] These workers pointed out that many carcinogenic hydrocarbons also had the property of retarding the growth of both normal and malignant tissues. A few of these hydrocarbons had in addition slight oestrogenic activity. This interesting story is rounded off by the observation that oestrogens, both natural and synthetic, in certain circumstances are carcinogenic and in other circumstances have growth-retarding properties. In their first paper Haddow and his colleagues gave an account of the treatment by synthetic oestrogens of 40 cases of carcinoma of the breast and 33 cases of cancer elsewhere. The first of their cases was treated in February, 1941. In 10 of the 22 cases of mammary carcinoma given triphenylchlorethylene there was an initial regression of the tumour, which was unfortunately not maintained. In the most dramatic of these cases there was almost complete regression within three months of taking triphenylchlorethylene by mouth, but this was followed by a regrowth of the tumour and final death from cancer. Similar results were experienced in the treatment of breast cancer with stilboestrol. This painstaking work makes it clear that these remedies do not provide a cure for cancer; but another fact is added to the mass that has accumulated round this subject—namely, that synthetic oestrogens do have some retarding effect upon the cancer cell.

In their 10 cases of prostatic cancer treated between 1941 and 1943 Haddow and his colleagues observed symptomatic and general improvement in all except one, improved appetite and gain in weight, regression of the primary tumour in 4 cases and of secondary deposits in lymph nodes in 3; but in other cases, in spite of general improvement, the number and size of secondary deposits in bone continued to grow. As the stilboestrol treatment of carcinoma of the prostate was first introduced in 1940, we are not yet in a position to assess the results in terms of "cure." The progress of 7 cases of proved adenocarcinoma of the prostate treated with stilboestrol or stilboestrol dipropionate since March, 1940, has been described by Kahle, Schenken, and Burns.[3] A detailed account[4 5] was given in 1942, and the present communication deals with the 5 of the original 7 patients who could be traced. One of the 5 died of urinary sepsis and heart failure. The findings are so important that the statements made by the authors are quoted: "In all 5 cases, including the fatal case, serial histologic examination showed definite regression in the carcinomatous tissues. There was a regression of metastatic osseous lesions, as demonstrated by serial roentgenologic examination, in the single case in which such lesions were present, and a regression of metastases to the lymph nodes in another instance." Massive doses of the drug produced no ill effect except in one instance of transient gynaecomastia. Another interesting point brought out is that in one case a recurrence of carcinoma occurred and the patient was equally responsive to a second course of treatment. The histological findings on sections taken at various periods throughout the treatment are also extremely interesting. The authors noted the following: "(1) In the untreated specimen the neoplastic cells present large vesicular nuclei, prominent nucleoli, and granular, reticular cytoplasm. (2) In the first stage of regression there is a decrease in the size of the nuclei associated with condensation of the nuclear chromatin. Nucleoli are no longer visible and mitoses are absent. Cytoplasmic vacuoles appear and are located predominantly at the bases of the cells. (3) In the second stage of regression the nuclei are pyknotic." These observations are highly important. The relief of symptoms—even though this may be only temporary—is an advance in therapeutics. The regression of the primary tumour is a very startling fact. But it is difficult yet to appreciate fuily the significance of this work. If the effect of stilboestrol on prostatic adenocarcinoma cannot be repeated on adenocarcinomas in other parts of the body it is tempting to suggest that carcinoma of the prostate is different from other forms of malignant disease, which is tantamount to suggesting that cancer has more than one cause, just as an inflammatory reaction has more than one cause. Haddow and his colleagues did, however, observe an effect on carcinoma of the breast treated by stilboestrol and of the bladder treated by triphenylchlorethylene. We must emphasize that the benefit observed in these cases during treatment with synthetic oestrogens —and possibly, therefore, resulting from this treatment—was only transitory, and that the hopes raised in the sufferers and their relatives were finally dispelled by death. And although apparently dramatic results are obtained in the treatment of cancer of the prostate, the cautious reader will observe that bony metastases can grow and extend during a treatment which is associated with a regression of the primary tumour.

Kahle and his colleagues discourage speculation on the mode of action of stilboestrol. Theoretically the curative effect may result from action of the pituitary, or direct action on the cancer cells or on the testes and the cells producing the androgenic hormone. Another possibility is that

[1] See *British Medical Journal*, 1944, **2**, 20.
[2] Ibid., 1944, **2**, 394, 398, 492.
[3] *J. Urol.*, 1943, **50**, 711.
[4] Ibid., 1942, **48**, 83.
[5] Ibid., 1942, **48**, 99.

the stilboestrol may upset the balance between androgens and oestrogens in the body and thus influence the growth of the new tissue. Others have suggested that the action may be due to some particular molecular configuration of the oestrogen. Dodds and his colleagues, responsible for the synthesis of the stilboestrol group of substances, have always pointed out that the structural resemblance of these substances to naturally occurring hormones is only superficial, and there would appear to be little advantage in speculating along these lines. Stilboestrol, hexoestrol, and dienoestrol are used in enormous quantities all over the world, mainly in the treatment of menopausal disturbances and the termination of lactation. The quite unforeseen use in the treatment of carcinoma of the prostate may prove to be the opening of a new and more hopeful chapter in the control of malignancy.

CHEMOTHERAPY OF TUBERCULOSIS

With the discovery first of arsphenamine, then of sulphonamides, and most recently of penicillin, effective drugs are now available for the cure of many of the infections of temperate climates. Others can be controlled by the prophylactic use of serum and vaccines. Among those conditions for which there is no effective cure are the common cold, influenza, and tuberculosis, and the last of these undoubtedly forms the biggest problem for chemotherapy. Numerous compounds have been tested for their action upon tubercle bacilli; most of the tests have been done *in vitro*, but some have been performed *in vivo*, mostly on guinea-pigs. Unfortunately the disease is so chronic, even in guinea-pigs, that a large number of animals are required over a long period to complete a single test; progress is accordingly slow. Among compounds which have been demonstrated during recent years to inhibit the growth of tubercle bacilli *in vitro* may be mentioned 2 : 4-dichlorobenzophenone[1] (active 1 : 100,000); sulphur compounds, especially mercaptobenzothiazole[2]; 3 : 5-diodo-2-hydroxylbenzoic acid[3] (active, 1 : 10,000); and 3 : 6-diamino-10-methylacridinium iodide[4] (active *in vitro* 1 : 250,000, but inactive *in vivo*). The compounds shown to be active *in vivo* have been mostly salts of heavy metals. Of these, gold compounds have received the most attention and are the best known. During the past twenty years preparations such as sanocrysin or solganal B have been used extensively in the treatment of human disease. Experts on tuberculosis are still far from unanimous about their value. Cadmium sulphate has been recommended as being as good as sanocrysin, while being cheaper and non-toxic.[5] In Germany a preparation of copper called "ebesal" was found to be useless for human pulmonary tuberculosis.[6] In a review in 1940 Findlay[7] concluded that none of the remedies up to that date had been shown to have a decisive influence on the course of the human infection.

In 1941 a more hopeful chapter was opened by the work of Hinshaw and Feldman[8] on sulphone derivatives. The earlier sulphonamide compounds had proved disappointing when applied to tuberculous infections, but these workers demonstrated that promin (sodium *p,p'*-diamino - diphenyl - sulphone - N,N' - didextrose sulphonate) arrests but does not completely suppress tuberculous infection in guinea-pigs. However, when promin (or promanide, as it is known in this country) was tested in human tuberculosis the results were disappointing. It caused toxic effects such as anaemia, cyanosis, agranulocytosis, gastro-intestinal disturbances, and other symptoms, and its therapeutic action was not very pronounced.[9] It was clear that promin was not the long-awaited remedy, though perhaps it might point the way towards it. The most successful method of using promin was that reported in 1942 by Tytler and Lapp,[10] who applied it locally to tuberculous ulcerations; but this report does not seem to have been amplified or confirmed. Various improved forms of promin have been announced, the most hopeful being promizole (4'-2'-diamino-phenyl-5'-thiazole sulphone),[11] which is somewhat similar to sulphathiazole; but clinical reports are not yet available. The sulphone group of compounds is the most promising one discovered so far. A most interesting development, however, has recently been reported[12]—namely, the use of the antibiotic substance, streptomycin, against tuberculosis; this is described in more detail on another page. In guinea-pigs it is as effective as promin.

The latest example of bactericidal action against tubercle bacilli *in vitro* is reported by Faulkner,[13] who has shown that diethylstilboestrol (4 : 4'dihydroxy-α : β-diethyl stilbene) is active in this respect. In a previous paper she had demonstrated that stilboestrol is bactericidal *in vitro* for Gram-positive organisms such as staphylococci, haemolytic streptococci, and diphtheria bacilli. When incubated at 37° C. for 24 hours in an aqueous medium, tubercle bacilli are killed by stilboestrol at a concentration of 1 : 20,000. If the bacilli are suspended in a medium containing 25% of serum the activity of the compound is much reduced, and a concentration of 1 : 3,000 is needed. In the light of these results it is interesting to recall clinical experience on the association of tuberculosis and pregnancy. During pregnancy phthisical women may appear to improve in health, but in the puerperium the tuberculous disease usually advances more rapidly. Tuberculosis of the placenta is very rare, but it occurs occasionally in women with acute generalized tuberculosis or advanced chronic pulmonary tuberculosis. It is stated in Faulkner's paper that the antituberculous action of stilboestrol is being investigated *in vivo*, and the results will be awaited with interest. But in view of the low activity in the presence of serum, and the long history of previous disappointments in this field, it seems most probable that the search for an effective remedy for tuberculosis will still have to go on. The chemotherapy of tuberculosis should be investigated on a much greater scale than in the past, once the war is over.

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[2] Mayer, R. L., *Rev. méd. franç.*, 1941, **3**, 22.
[3] Saz, A. K., and Bernheim, F., *J. Pharmacol.*, 1941, **73**, 78.
[4] Heki, M., Miura, K., *et al.*, *Z. Tuberk.*, 1941, **87**, 181.
[5] Ray, K. S., *et al.*, *Indian med. Gaz.*, 1941, **76**, 204.
[6] Schedtler, O., and Rödiger, E., *Beit. klin. Tuberk.*, 1941, **96**, 155.
[7] Findlay, G. M., *Indian med. Gaz.*, 1940, **75**, 632.
[8] Hinshaw, H. C., and Feldman, W. H., *J. Amer. med. Ass.*, 1941, **117**, 1066.
[9] Hinshaw, H. C., Pfuetze, K., and Feldman, W. H., *Amer. Rev. Tuberc.*, 1943, **47**, 26; Heaf, F. R. G., Hurford, J. V., Eiser, A., and Franklin, L. M., *Lancet*, 1943, **1**, 702; Dancey, R. J., Schmidt, R. H., jun., and Wilkie, J. M., *Amer. Rev. Tuberc.*, 1944, **49**, 510.
[10] Tytler, W. H., and Lapp, A. D., *British Medical Journal*, 1942, **2**, 748.
[11] Feldman, W. H., Hinshaw, H. C., and Mann, F. C., *Proc. Mayo Clin.*, 1944, **19**, 25.
[12] Feldman, W. H., and Hinshaw, H. C., Ibid., 1944, **19**, 593.
[13] Faulkner, G. H., *Amer. Rev. Tuberc.*, 1944, **50**, 167.

DIMETHYL PHTHALATE AS AN INSECT REPELLENT

The fight against insect-borne diseases has in this war been an important part of the fight against the German and the Jap. It has been conducted with the weapons of immunization and drugs, by new methods of killing the insects, and by protective clothing and repellents. A repellent which would prevent insects from biting ought to be an ideal protection; but unfortunately a bloodthirsty insect is not easily put off. Citronella, the material chiefly used before the war, was effective only for quite a short time, though its pungent (and eventually repugnant) odour seemed very persistent to the human nose. Systematic research revealed several new repellents that are more efficient and more pleasant. One of the most widely used is dimethyl phthalate. It is a colourless and practically odourless oily liquid, boiling at about 280° C. and less than 1% soluble in water. Together with other phthalic acid esters it is widely used in industry as a plasticizer, but, according to Lehmann and Flury, no cases of industrial poisoning are known. A point which should be remembered in handling or using the substance is that it softens and dissolves plastics, some of which are in common use; therefore it should not be allowed to contaminate certain buttons, plastic jewellery, or fountain pens, and possibly some kinds of artificial silk may be attacked.

Dimethyl phthalate can be applied to the skin without harm, though it may cause smarting on very sensitive areas (such as eyelids, lips, or scrotum), which should be avoided. This treatment is easily carried out by anyone and will prevent the bites of mosquitoes for three to five hours. When 50 to 100 c.cm. was sprayed on to a suit of clothing, protection from *Aëdes taeniorhynchus* was obtained for about a week. Similar results were obtained with *Aëdes aegypti* and *Anopheles quadrimaculatus* in laboratory tests. Since mosquitoes readily bite through clothing, this method is a valuable adjunct to skin application.[1] Dimethyl phthalate has been successfully used in the field as a repellent for *Phlebotomus papatasi*, the vector of sandfly fever. No satisfactory method of controlling the disease or controlling the vector has yet been devised. The usual procedures, such as screening, are ineffective because of the small size of the fly. In an experiment carried out in the Eastern Mediterranean area[2] the daily use of dimethyl phthalate by troops reduced the complaints of bites and the incidence of the disease. For protection against fleas dimethyl phthalate also shows promise. Laboratory tests[3] of forty-six possible repellents were made by exposing a treated human arm to a large number (500–1,000) of dog and cat fleas (*Ctenocephalides spp.*). Dimethyl phthalate was high on the list of efficiency and was devoid of certain objections, such as toxicity to man and high cost. Clothing treated with it will give protection from flea attacks for several days. As well as repelling biting insects, dimethyl phthalate will prevent the attacks of the mites *Acariscus* and *Eutrombicula*. The larvae of these mites are called "chiggers" in the U.S.A., and their attacks are similar to those of the harvest mite, to which they are related. The repellent is applied to all the openings of the clothing and is said to give good protection for thirty days after treatment.[4]

Dimethyl phthalate is not the only new promising repellent. Indalone (*n*-butyl mesityl oxide oxalate) and "Rutgers 612" (2-ethylhexanediol-1,3) have been widely employed,[1] while the insecticide pyrethrum also acts as a repellent by its paralytic effect.[3] Some species of insect are most sensitive to one and some to another. For example, "Rutgers 612" has proved most effective against *Aëdes*, whereas dimethyl phthalate is most effective against *Anopheles quadrimaculatus*. Indalone is of little value for the latter but is highly efficient for the stable fly, *Stomoxys calcitrans*. To obtain the very best possible results it may be desirable to choose the most suitable repellent for the circumstances or possibly to make a universal mixture.

[1] Knipling, E. F., and Dove, W. E., *J. econ. Entomol.*, 1944, **37**, 477.
[2] Paul, J. R., and Sabin, A. B., *War Med.*, 1944, **6**, 27.
[3] Lindquist, A. W., Madden, A. H., and Watts, C. N., *J. econ. Entomol.*, 1944, **37**, 485.
[4] Madden, A. H., Lindquist, A. W., and Knipling, E. F., ibid., 1944, **37**, 283.

PLANNING IN PAEDIATRICS

Both in the report of the Goodenough Committee and in the report of the Royal College of Physicians on medical education it was stressed that more attention should be paid to paediatrics. The R.C.P. Planning Committee recommended "that paediatrics should be regarded as a major clinical subject," and now a Paediatric Committee of the College—widely representative not only of paediatrics but also of general medicine, public health, psychiatry, and obstetrics—has endorsed this, and in an interim report sets out detailed proposals for undergraduate and postgraduate education in this subject. It is stressed that throughout pre-clinical training more attention should be paid to normal growth and development of children and to morbid processes which are peculiar to childhood. In the clinical stage it is recommended that a period of not less than one-third of that devoted to clinical medicine should be set aside for clinical paediatrics. This is to be supplemented by work in a neonatal department while the student is taking his course in obstetrics; by visits to a child welfare centre; and by opportunity for observing chronic diseases at special "homes" and convalescent homes. For a medical school with an annual entry of 80 to 100 students a paediatric department of 100 beds is suggested, with additional beds for tonsillectomy cases and for infectious diseases. The general supervision of all children admitted should be undertaken by the paediatrician in association with the surgeon and specialist who may be concerned with treatment. For the staffing of such a department, which it is hoped will have university status, a whole-time director of professorial rank is recommended. The remaining staff is on the following lines: one whole-time assistant, preferably with the rank of reader in the subject; one whole-time senior assistant; one registrar; two part-time paediatricians—on the hospital staff; and resident officers. It is also suggested that from the departments of psychiatry, radiology, and pathology a member of the staff should interest himself especially in the problems of childhood. Surgeons and specialists would also be appointed to the department, and stress is laid upon the great importance of the nursing staff being on the Sick Children's Nurses' Register.

These considerations of curriculum and staffing lead on to the place of paediatrics in the final examination, with special reference to the Conjoint. Questions on paediatrics in the medicine paper and a separate clinical examination are recommended, with paediatric examiners taking part. Postgraduate training is discussed for four groups: consultant paediatricians to be trained on the lines already agreed upon for consultants in general by the three Royal Colleges; consulting physician-paediatricians with a modified training as an interim measure until more of the first group are available; general practitioners requiring refresher courses; and medical officers in the child health service, who should, it is recommended, be closely linked to the hospitals so as to ensure working association between preventive and curative work. It is apparent in this report that the experience of Canada and the U.S.A. has been

carefully studied: the recommendations follow closely the established practice across the Atlantic, so that the claims of paediatricians, great as they may appear in the eyes of those accustomed to what the Goodenough Committee described as "inadequate" in this country, are not in the nature of fancy experiments but an attempt to keep pace with the developments of a subject "vital to the future of the nation."

STREPTOMYCIN, A NEW ANTIBIOTIC

The brilliant success of penicillin has led to vigorous search for other antibacterial products derived from mould and similar micro-organisms. Many such substances have now been described—e.g., gramicidin, clavacin, helvolic acid, etc.—but none of these has come into extensive clinical use. Recently two promising compounds named streptothricin and streptomycin have been isolated by Waksman and others[1 2] from certain species of soil actinomycetes. They resemble each other in many respects, but streptomycin is likely to prove the more valuable of the two. It is obtained from *Actinomyces griseus* grown under certain conditions. Like streptothricin, it is highly stable and resists moderate heat, storage, and the action of most other organisms; thus it is in marked contrast to penicillin. Chemically it appears to be an organic base. It is soluble in water but not in ether or chloroform. It inhibits the growth *in vitro* of *B. subtilis*, the tubercle bacillus (human strains), *Bact. coli, Staph. aureus, Brucella abortus, Bact. aerogenes*, and various other Gram-negative organisms of the *Salmonella* or dysentery groups. It has a moderate inhibiting effect upon the growth of *Proteus, Sal. aertrycke*, and *Ps. pyocyanea*. It has no action upon moulds or *Trypanosoma equiperdum*. Its toxicity for animals is fairly low, the lethal dose for mice of a purified preparation being 7 g. per kg. In most of these respects streptothricin is similar, but its antibacterial action is less powerful and is restricted to a smaller number of organisms.

The chief promise of these compounds lies in their action on the Gram-negative bacilli, many of which are resistant to both sulphonamides and penicillin; the results of clinical trials will be awaited with interest. So far none have been reported (perhaps because only small quantities of the compound are available), but animal tests have been carried out in mice. Streptomycin has been very effective in protecting mice against a mixed infection of *Proteus vulgaris* and an anaerobic streptococcus, both obtained from a case of severe human infection. Favourable results have followed treatment by streptothricin of mice and chick embryos infected with *Sal. aertrycke, Sal. schottmülleri*, or *Br. abortus*, or when similar infections due to *Sal. schottmülleri, Ps. pyocyanea, Shigella gallinarum*, or *Br. abortus* were treated with streptomycin. In the United States there is trouble due to a disease called tularaemia, which is unaffected by sulphonamides and penicillin. In a recent year 1,600 cases occurred, with a mortality of 3 to 5%. Heilman[3] has now reported that the causative organism, *Pasteurella tularensis*, is more than thrice as sensitive to streptomycin as *Bact. coli*, and that infections in mice can be completely prevented by this compound. The most interesting of all applications of streptomycin, however, is its possible use against tuberculosis. As observed above, it inhibits the growth of tubercle bacilli *in vitro*. Recently Feldman and Hinshaw[4] have described a trial on tuberculosis in guinea-pigs, similar to their previous trials with promin. Guinea-pigs were inoculated with virulent bacilli and treated with doses of up to 6,000 units daily for sixty days. At the end of this time there was widespread tuberculosis in untreated control animals, while in the treated animals it was hardly detectable microscopically; viable bacilli, however, were usually still present. These results are interpreted as showing that the antituberculous activity of streptomycin is comparable with that of promin and similar compounds. Further work will be awaited expectantly. When streptomycin and streptothricin become more widely available in large enough quantities their clinical applications will deserve careful study.

[1] Schatz, A., Bugie, E., and Waksman, S. A., *Proc. Soc. exp. Biol.*, N.Y., 1944, **55**, 66.
[2] Waksman, S. A., Bugie, E., and Schatz, A., *Proc. Mayo Clin.*, 1944, **19**, 537.
[3] Ibid., p. 553.
[4] Ibid., p. 593.

SEX HORMONES FOR MELANCHOLIA

With increasing age high spirits tend to fall. This is as true for the mentally disordered as for the sane, and as age creeps on mania becomes rarer and melancholia commoner. In the involutional period of life a depressive colouring to mental illness is the rule rather than the exception, and illnesses of many different kinds may then show depression as their most prominent symptom and be difficult to disentangle. Patients who on first admission to hospital are diagnosed as suffering from involutional melancholia may turn out to be suffering from an organic disease such as cerebral arteriosclerosis, others from a late schizophrenia, and others from a recurrent manic-depressive syndrome. Still another type of melancholia has been found to arise in people of a rigid, unbending, conscientious, and puritanical temperament—the so-called obsessional personality. In them there are fair hopes of spontaneous recovery—hopes which have been turned into high probabilities by the advent of convulsive therapy.

Danziger and his co-workers[1 2] have pointed out what may prove to be yet another small but distinct group, consisting of patients who became depressed with a failure of the endocrine activity of the sex glands. The evidence in favour of the existence of this group is so far purely clinical. The possibility of endocrine failure in women as the cause of the depression is suggested by a close temporal relationship between its onset and the menopause. If patients are chosen in whom this relationship holds and the illness is a first attack, Danziger shows that benefit follows the administration of oestrogen, and the bigger the dose the better the result. From cases reported in the literature 1 of 3 recovered or was greatly improved with doses of less than 3,000 international units a month, 9 of 13 with doses of 24,000–45,000, and 22 of 23 with doses of 80,000–600,000. In men there is no such simple indicator of endocrine change as the menopause. But it seems that even in a mixed group of patients the response to androgens is better than could have been expected from the natural history of the disease. Even if this method of treatment does not prove in general to have better prospects than convulsive therapy it clearly needs further study. A minority of patients, in whom there is no reason to suspect either a late schizophrenia or an organic dementia, still fail to get better after treatment with fits, or, having once improved, again relapse. It is possible that among them are those whose illness is due to endocrine change. Furthermore, the pathogenesis of these illnesses is so little understood that more information about a possible physiological basis would have theoretical as well as practical importance.

[1] *Arch. Neurol. Psychiat.*, Chicago, 1944, **51**, 457.
[2] Ibid., p. 462.

The next session of the General Medical Council will begin on Tuesday, May 29, at 2 p.m., when the President, Sir Herbert Lightfoot Eason, will take the chair and deliver an address.

THE CHILD'S ACQUISITION OF SPEECH

BY

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In the course of a research into defects of articulation in school-children I discovered, with some astonishment, that although the child psychologists have already built up a considerable literature regarding the development of *language* in the young child, there were apparently no records of any large-scale observations concerning the normal acquisition of the actual speech sounds. Most of this work on the acquisition of language has been done by non-medical psychologists recording the linguistic development of one child or of a small group of children, usually the offspring of highly intellectual parents. The latest English observers (to mention only a few) include M. M. Lewis, Susan Isaacs, C. W. Valentine, and G. Seth (writing in collaboration with D. Guthrie, the laryngologist); while the whole field of mental development in relation to language development has recently been admirably surveyed by A. F. Watts. Leopold Stein, who now works in London, approaches the subject from the point of view of the medical psychologist who is also a philologist and a speech therapist, and for this reason his work is particularly valuable.

The reason for this apparent neglect of research into the acquisition of normal speech sounds was immediately obvious when I began my own investigations. The difficulties are fourfold. (1) The young child, in passing from the stage of babbling to the stage of fully articulate speech, makes use of a number of sounds for which there is no recognized phonetic symbol, so that accurate charting is sometimes impossible, and the recorder is obliged to use those symbols which most nearly represent the child's speech. It is therefore essential that the recorder should be an experienced phonetician. (2) It is unscientific to draw conclusions from incomplete records of a child's speech, but it is exceedingly difficult, in the time at one's disposal, to persuade some children to demonstrate the full range of their phonetic usage. The observer must therefore be skilled in the examination of young children. (3) It is unwise to generalize from the speech of one child or of a small group of children. It is therefore necessary that the recorder should have facilities for observing large numbers of young children with widely differing intellectual, social, and geographical backgrounds. (4) In order that speech sounds may be normally acquired it is necessary that the child's mechanism for speech and hearing should be perfect. It is therefore desirable that the observer should be a medical officer experienced in detecting even slight deviations from the normal anatomical, physiological, and psychological standards.

In the course of some 3½ years I have been able to collect complete records of the speech of 650 children under the age of 5 years. Of these, 620 were children attending nursery schools and clinics, while the remaining 30 were mostly children of friends and relations whom I was privileged to observe over prolonged periods. In addition to these there were dozens of other children encountered in nurseries, trains, shops, even in bus queues, who provided me with fragmentary samples of their speech. The records were charted according to age (in 1/4-year periods) and sex.

The Child's First Efforts

From the detailed analysis of this mass of material a definite pattern gradually emerged. Following the infant's realization that the speech and gestures of his adult attendants possess meaning—a realization which normally occurs about the age of 8 to 9 months—he begins to make responsive sounds whenever he is spoken to, and to play with his own vocal sounds when he is alone. These sounds are usually of the repetitive variety—"bab-bab-bab," "mum-mum-mum," "dad-dad-dad"—sounds which are promptly appropriated by the parents as proper names. Soon this game is carried a step further by the child's recognition and subsequent echoing of the cadences of adult speech, so that his babbling assumes normal vocal inflections or "tunes." Listening outside the nursery door to this tuneful babbling, it is often impossible to believe that the child is not using articulate speech. He uses most of the vowels and consonants, but the sequence of utterance is so undisciplined that the result is unintelligible. At this stage the child's comprehension of speech, which rapidly outstrips his performance, is often remarkably good. ("Shut the door, please," "Look, here's Daddy coming," and "Never mind, I'll kiss it better," says the mother, and he immediately responds.) The child now realizes that speech is the most convenient form of communication. The use of real words follows. Often this real word is comprehensible only to the mother. It is imperfectly articulated and therefore difficult to interpret, but since he uses it consistently for any given object or activity his mother rapidly learns to understand him. Just as the experienced ear makes up the missing frequencies from a telephone conversation, although only about 70% of the speech sounds are actually transmitted, so that the listener is unconscious of any deficiency, so the mother listening with the ear of knowledge and love will assure one that the child's speech is "perfectly plain," and that "he can say anything," although the recorder is struggling to interpret a glorious jumble of phonetic substitutions, elisions, and omissions.

For some time not only the tunes of speech but the loudness and shrillness of the voice itself are greatly exaggerated. I have observed this many times in children of every social grade and level of intelligence. They tend to shout, using a very wide range of notes, as if a nice discrimination of pitch and intensity comes only with more experienced listening and imitation. The first "words" or sound groups often consist only of vowels and a tune, and are frequently accompanied by an explanatory gesture; thus the child says "i—i" ("dicky") and points at the sparrow in the garden, or, handing the last brick, "a—aw!" ("that's all!"). Or the word consists of a labial consonant, a vowel, and a tune; thus "baw"="ball," "mow"="mouth," "woh a?"="what's that?"

Vowels

The vowel sounds used re-echo the accent of the environment in which the child lives, but certain deviations from the environmental normal are constantly observed. The long vowels—"oo" (pool), "aw" (paw), "ah" (palm), "er" (pearl), "ee" (peel); and the short vowels—"u" (as in hut and in put), "o" (hot), "a" (hat), "e" (set), "i" (sit), appear some time before the diphthongs; but frequently the sound "e" (set), and less frequently the sounds "u" (hut and put), and rarely "o" (hot) and "i" (sit), are lowered to the sound "a" (hat); while "u" (put) is lowered to "o" (hot) so that "egg"="agg," "head"="had," "pull"="poll"; and less frequently "foot"="fat," "duck"="dak," "cot"="cat," even "bib"="bab," although more usually the "i" (bib) becomes "e" (beb). The diphthongs are difficult to write in ordinary script, but they are the vowel sounds in the words "mail," "mile," "boy," "sole," and "cow." They consist of two vowel sounds closely joined together, the first of which (in English usage) is generally given more weight and resonance than the second, to which the tongue glides only lightly and briefly. The diphthongs appear to cause the child considerable confusion at first, so that the latter less prominent half is often omitted; thus "lady"="leddy," "now"="nah," "noise"="nawse," although occasionally the latter half is used—thus "lady"="leedy," "cow"="coo." Later when the presence of two sounds has been appreciated the diphthongs themselves are sometimes interchanged; thus "coal"="cowl," "day"="die," and less frequently "my"="may." I have recorded these apparent Cockneyisms over and over again in the speech of children who have never heard a true Cockney vowel in their lives.

Consonants

While the vowels are being acquired consonants are rapidly tacking themselves on to them—first at the beginning of the word (since the initial consonant is normally spoken with more weight than the terminal one and therefore is more rapidly appreciated by the child's inexperienced ear) and, much later, at the end and in the middle of the word. The first consonants to be acquired are usually the nasal sounds (m and n) and the labials (b and p), followed by the "front stops" (t and d). Less often the "back stops" (k and g) are used first, but

whichever pair the child first acquires he normally uses only that pair for both front and back stops for an appreciable time; thus when the front stops are chosen, "top"="top" and "doll"="doll," but "doggie"="doddy," "cup"="tup," "cat"="tat"; or where the back stops are used, "cup"="cup," but "two"="koo," "dirty doggy"="gerky goggy," "toy tank"="koy kank."

The sounds represented in ordinary script by the letters "r," "l," "w," and "y" are usually late in appearing, and are frequently interchanged, so that a "rabbit" may be a "wabbit" or a "labbit" or a "yabbit"; a "lion" may be a "rion" or a "yion," and so on; but whichever sound the child chooses the substitution is usually consistent for a period of some weeks or months. The last single consonant sounds to be acquired and finally differentiated are "h" (which is a mere breathed sound) and those forming the group represented in ordinary script by the letters "z," "zh" (as in "pleasure"), "v" and "th" (voiced, as in "mother"), and their unvoiced equivalents "s," "sh," "f," and "th" (as in "thing"). These sounds appear to give the child considerable difficulty, and even when they have been acquired they are often interchanged; thus "father"="farver," "another"="anozzer," "thing"="fing," "finger"="thinger," "five"="thithe" (sometimes "five"="pibe," another auditory confusion), "sweeties"="feetie," "sixpence"="thikthpenth." Of all the sounds the unvoiced "th" ("thing") is the last to be fully appreciated. It is so rare before 5 years of age that of my 650 cases only 20% of the girls and 9.7% of the boys used it correctly. There could hardly be a prettier demonstration of the auditory basis of speech than this, since we know from Harvey Fletcher's investigations that the phonetic force of the voiceless "th" is the least of all the speech sounds, being 680 times less than that of the vowel sound "aw" (paw).

While the child is still in the process of differentiating these last two sound groups (the "r, l, w, and y" group and the "s, f, th" group) the first attempts at double consonants are being made. At first all double consonants are reduced to one single sound; thus "train"="tain," "cream"="keam," "please"="pease," "pretty"="pitty," "bridge"="bid," "spoon"="poon," "star"="tar," "school"="kool," "jam"="dam" (the letter "j" is really two sounds—d–zh), "chip-chop"="tip-top" (ch is really t–sh). In other words, the child once more at first chooses the sound which is easiest to hear and uses it alone; but as he becomes aware of the presence of a double sound an interesting fact emerges. He will usually make use of his habitual single substitutions in these double sounds, so that "three"="fwee" or "fyee," or even "flee," "tree"="klee," "drink"="dyink," and "scream" becomes the wonderful tongue-twister "thkleam."

Speech Development

It has been pointed out that the initial consonant sounds appear before the central and terminal ones. This observation applies to all sounds which are difficult to hear and includes even weakly stressed syllables and vowels. For instance, the neutral sound which ends so many of our spoken English words (china, motor, paper) is often not appreciated for a considerable time. But the child is so conscious of the cadences and rhythm of speech that he will invariably leave a space for the unspoken sound, which might be compared to the rest in music or, perhaps more accurately, to the metrical pause in prosody, since there is seldom an actual break, but rather a lingering over the preceding vowel. Thus I have many times recorded this gradual evolution of the words "pussy cat":

pu: pu	pu: i tat
pu: pu ta ("a" as in "hat")	pu: i cat
pu: i ta	pussy cat

These patterns of speech development are so constant, the cases of anatomical defect are so rare (with the exception of malocclusion of the jaws, which I have noted elsewhere as being closely associated with defects of "s" in slightly older children), and the child's tongue finds it so easy to perform athletic feats impossible to the adult, whose phonetic habits are firmly established, that I cannot believe these substitutions are due to any muscular incoordination. I feel sure they must be true auditory confusions. The fact that nouns and verbs are the first grammatical entities to be acquired also points to the auditory basis of speech, since not only are they focused upon the child's attention because they are associated with his bodily activities, but they also receive greater phonetic emphasis than any other parts of speech. Harvey Fletcher has shown that good hearing over the upper frequencies of the speech range (i.e., 4,096 to 8,192 cycles per second) is necessary for the accurate appreciation of the sounds "s," "f," and "th" in nonsense syllables. My own observations on the speech of various groups of school-children indicated that both the child with impaired hearing and the mentally retarded child had difficulty in distinguishing these sounds—the first because he is *physically* incapable of appreciating their upper components, the second because he is *functionally* unable to recognize fine distinctions, although his actual hearing for pure-tones may be normal. Just as his muscular control is clumsy and his mental processes immature and slow, so are his speech patterns infantile in character.

This interesting question therefore arises: Are these consistent patterns of speech occurring in the normal course of development the result of some structural immaturity (analogous to the hypermetropic eye of childhood) in the auditory nerve itself or its association areas; or are they the result of a psychological immaturity—in other words, of that faculty of attention and discrimination which is listening? I incline to the latter view, since I have observed many times how rapidly these infantile habits of speech improve when the child is introduced to the salutary influences of community life in a nursery school. In my experience baby speech most commonly persists in the neglected child, in the spoilt only child, and in the adored youngest of large families. The only child of intelligent parents usually acquires perfect speech very early; but the over-indulged child, to whom everything is given if he merely points and whose parents consider his defective language to be unique and charming, and the neglected child, to whom nobody troubles to talk, these have no incentive to improve their articulation. I have observed the same "environmental" retardation occurring, even more dramatically, in the case of twins. In their small world nobody else matters but one's twin and one's mother, and between them they establish a rudimentary vocabulary which is sufficient for their entire nursery existence, and which is often so completely unintelligible to the rest of mankind that it has been thought that they have evolved a new language. On phonetic analysis, however, I have always found that the words used are recognizable but degenerate forms of normal infantile speech. The best remedy for all these children—neglected, isolated, or over-indulged—is daily attendance at a nursery school. It should be remembered that this intellectual neglect may occur in hospitals and in residential nurseries although the child's physical needs receive devoted attention. Nurses in charge of young children should never be allowed to forget their responsibilities towards the child's mental growth.

Speech Therapy

The question of formal speech therapy in the absence of gross anatomical defect, such as cleft palate, does not usually arise before 5 years. The child who by 2½ years has not made any attempt to develop normal speech, however slowly, along the lines indicated above should be suspected of deafness or mental retardation and the appropriate expert consulted. But there can be no more question of teaching the child to speak before he has made his own spontaneous efforts than there can be of teaching him to walk before he has made an attempt to stand and to crawl. The child should be presented with good models and should be encouraged to speak in every possible way by being played with, spoken to, and, just as importantly, listened to. For this reason the play methods of the day nursery school, where the child is provided with toys, creative material, new experiences, and intelligent guidance, are usually of the utmost benefit to his linguistic and therefore his general intellectual development. When infantile habits of speech persist after 6 or 7 years old the assistance of an experienced speech therapist becomes essential, or the child will stabilize his defects so that they become increasingly difficult to correct. Moreover, his scholastic progress, especially in the linguistic subjects, will be seriously delayed. The child who does not readily respond to this expert teaching should be examined by the school

medical officer with a view to determining whether his intelligence quotient and his hearing for pure-tones are normal.

Summary

The speech of 650 children under 5 years old was examined and phonetically recorded. A consistent pattern of speech development was observed. The auditory implications of this speech pattern are discussed.

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Nova et Vetera

THE SAN JUAN EARTHQUAKE

A MEDICAL NARRATIVE

Early last year the British press contained brief references to an earthquake that had occurred in San Juan, Argentina. The scantiness of the information available at a time when most space in the general press is necessarily reserved for war news lends particular interest to an account[1] of this disaster by Dr. Carlos I. Rivas of the Instituto de Clínica Quirúrgica of Buenos Aires. At first glance one is struck by the familiarity of the scenes depicted in the accompanying photographs. A whole street lies in ruins, with nothing standing but a few sections of wall. Another picture shows the crushed remains of a car buried under a pile of masonry. In a third, two rescue workers stand by an excavated corpse.

San Juan is a town with a population of 20,000, the capital of the province of the same name. It is west and slightly north of Buenos Aires, and about 700 miles away. On the evening of Jan. 15 a brief report was received in Buenos Aires that there had been an earthquake at San Juan; few details were available. On the following morning it was heard that the incident was serious, and that many injured were in urgent need of attention. An emergency scheme was quickly improvised, and on the next day a train left Buenos Aires carrying 20 doctors, 30 nurses, and abundant surgical equipment. At the same time a team of 20 surgical specialists, including Dr. Carlos I. Rivas, assembled at the El Palomar airfield, where they were joined by General Perlinger, Minister of the Interior, and took off for Mendoza in two military aircraft. On arrival at Mendoza, about 100 miles from their ultimate destination, they learnt that "the extent of the tragedy is not yet known, but each fresh news seems more unfavourable."

The rest of the journey was made by road, and as they approached the outskirts of the city they were greeted by a sight which the cinema had made familiar, but which they had hardly expected to see for themselves—an exodus of survivors in columns which grew more dense as the city limits were approached. Further on they were confronted by an incredible spectacle. "The San Juan earthquake involved the complete destruction of the city." As the car lurched through streets covered with debris, exclamations of amazement escaped from the lips of the surgeons, but soon they were silent—"all their energies concentrated in their eyes." Freak effects were to be seen—a dining-room exposed, with a meal uneaten and undisturbed on the table. At last they reached the Hospital Rawson, which was found to have been partly destroyed. Patients had been transferred to the hospital garden, where they lay in bed surrounded by relations and friends. The medical staff had been continuously engaged in administering first aid to an ever-growing stream of injured survivors. A little further, on a smooth lawn, lay hundreds of corpses in rows, many of them in grotesque attitudes, while survivors seeking missing relatives or friends moved among them in an anguish of fearful expectation.

It was clearly impossible to establish a suitable medical organization in such surroundings, and the party therefore chose a building in a reasonable state of preservation—the Colegio Nacional—and, with the aid of six soldiers, worked desperately to transform it into an emergency hospital. From a photograph reproduced by Dr. Rivas this seems to have been done very efficiently. This preliminary task was completed by 8 p.m., and by midnight, when the additional medical personnel arrived by train, a hundred patients had been treated. With the arrival of these reinforcements, available personnel was organized into five surgical units, who set to work on a constantly renewed emergency hospital population of 120 patients. The principle adopted was to give whatever attention was needed to render each patient fit for transportation as quickly as possible to a suitably equipped surgical centre elsewhere. As would be anticipated, there was a predominance of fractures of the lower limbs and of chest injuries. Lesions of the vertebral column were fewer.

After several days of uninterrupted work, some hundreds of cases had been dealt with and the work of the Buenos Aires mission was completed. Although the thousands of dead, and the hundreds of wounded evacuated to Mendoza and now enjoying rest, food, and medical attention represented a solution of the medical problem, Dr. Rivas says that the members of the mission were acutely aware that a far greater social problem remained. As the surgeons gazed at a convoy of men, women, and children leaving their desolated town to start a new life in some unfamiliar place, they did not know whether to be moved more by compassion for their misfortune or by admiration for their stoicism.

This account by Dr. Rivas is not intended to be anything but a personal narrative. It gives no details of treatment or of the lesions encountered, and does not refer to the auxiliary services—emergency food and water supplies, clothing, and rest centres—that a totally devastated town might be supposed to require. There is only a passing reference to an event which further clouded an experience already full enough of misfortune—an accident to one of the planes which cost the lives of some of Dr. Rivas's surgical colleagues. Nevertheless the reader is left with the impression that the surgeons who were called upon so dramatically to help in this unpredictable disaster brought to their task a high degree of fortitude and resource.

N. HOWARD JONES.

[1] Rivas, C. I. (1944). *Bol. Inst. clín. Quirúrg. B. Aires*, **20**, 585.

MEDICAL EDUCATION IN THE U.S.A. BEFORE THE CIVIL WAR

Medical Education in the United States Before the Civil War, by Dr. William Frederick Norwood, with a foreword by Prof. Henry E. Sigerist, is published in Philadelphia by the University of Pennsylvania Press, and in London by the Oxford University Press (price 36s.). This volume of just over 480 pages with its extensive bibliography is an important contribution not only to the story of American medicine but also to the cultural history of the United States. It surveys the rise and progress of the American system of medical instruction and the institution of medical learning up to the time of the Civil War—a period of gradual progress in raising the standards of professional education, for it saw a renaissance begun at Harvard in 1771 and emphasized many years later at Johns Hopkins.

The author in his review of all the colleges throughout the U.S.A. has been thorough. We cannot find any that have been omitted. During the first two centuries of colonial history, instruction by apprenticeship was the prevailing system. Ere long European influence began to bear fruit. London, Paris, and especially Edinburgh, were attractive to young Americans after 1750, who on their return became preceptors and lecturers. In the first medical schools there was generally a provision for the M.B. degree as well as a doctorate, but as so few of the baccalaureate candidates ever returned to qualify for the advanced degree it was abolished in the second decade of the nineteenth century in favour of the M.D. After several years of struggle Elizabeth Blackwall in 1847 gained admission to Geneva College and graduated two years later. In 1850 forty women entered the Pennsylvania Women's Medical College, from which Dr. Ann Preston accepted the chair of physiology and hygiene and thus became the first woman medical professor. By 1865 four medical colleges for women had been established. The most significant event of this period was the founding in 1847 of the American Medical Association. It was conceived as an instrument of reform and charted a course for the elevation of medical education; it rescued the early American profession from being largely empiric.

Dr. Norwood has paid much attention to documentation while maintaining the interest of his story. His book will be found valuable in exploring the subject of the medical birth of a nation.

The old Foundling Hospital, established in 1740 by the philanthropist Capt. Thomas Coram, has had many medical friends. Some years ago the boys and girls and those in charge of them moved from the large site in Bloomsbury to new quarters at Berkhamsted in Hertfordshire. It is a sign of the times that the Foundling Hospital Schools are in future to be known as the Thomas Coram Schools, Berkhamsted.

Reports of Societies

PREPARATION OF DIABETIC PATIENTS FOR OPERATION

At the meeting of the Section of Anaesthetics of the Royal Society of Medicine on May 4 Dr. GEORGE GRAHAM read a paper on "The Preparation of the Diabetic Patient for Operation."

Diabetes to-day, said Dr. Graham, was not a contraindication for any operation provided a physician was at hand who knew how to look after these patients, adequate facilities for such estimations as blood sugar were available, the best anaesthetic was chosen and given by a good anaesthetist, and the operation was well and quickly done. A local or spinal analgesic caused least disturbance. Gas-and-oxygen was the next best, provided enough sugar was given to prevent any cyanosis. The intravenous anaesthetics, pentothal and evipan, came next. Ether, which might be necessary to get complete relaxation with gas-and-oxygen, should be used only in small amounts; avertin was better not used, and chloroform should never be used.

The diabetic condition should be as well controlled as possible. If it was mild and the patient was not taking insulin but was having a small amount of carbohydrate, say, 100 g., it was better to increase the carbohydrate to, say, 150 g. and to give a small dose of insulin (10 units for an extra 50 g.). In the morning six units might be given, and four at night, for two or three days before operation. If the patient was having insulin but was passing a good deal of sugar, and the operation was not an emergency, it was better to increase the insulin for a few days, and thus stabilize the condition. If the patient belonged to the class liable to have overdoses when any attempt was made to get the urine sugar-free, no change should be made. The ordinary or quick-acting insulin should be used in the preparation of the patient rather than the slow-acting insulins. If the patient was taking one dose of protamine zinc or globin insulin, say 20 units, he should be given for two or three days 12 units in the morning and 8 at night of the ordinary insulin. If bigger doses were being taken they should be split up in the same manner.

On the day of operation the morphine given should be as small as possible, say 1/6 gr. The patient should have his usual feeds at bedtime, and on the morning of the operation he should have at least 50 g. of glucose. The dose of insulin given varied according to the type of anaesthetic. If 50 to 70 g. of carbohydrate were taken at breakfast the patient should be given 50 to 70 g. of glucose, and his usual dose of insulin, together with a supplement depending on the anaesthetic. If the anaesthetic was gas-and-oxygen and ether at least 10 units should be given as a supplement; if pentothal, 2 or 4 units; and if a local or spinal analgesic, no supplement at all. The sugar should be given two hours before the time for the operation. The only complication which might occur, if the dose of insulin and sugar was arranged somewhat on these lines, was hypoglycaemia, evidenced when the patient did not recover consciousness at the right time after the operation. Dr. Graham had seen this once only, but it was a complication to remember, and if the patient had not recovered consciousness at about the right time an intravenous injection of glucose should be given.

In an emergency operation, if the patient had been taking insulin and was not passing sugar, the dose of insulin and glucose was decided as for the set operation. If the patient was passing a good deal of sugar and some acetone bodies the supplementary dose of insulin for the analgesic should be increased—10 units for a local or spinal anaesthetic, 14 or 16 for pentothal, and 20 to 25 if ether was given. This supplement would be sufficient for the anaesthetic, but the patient might need much more after the operation. If he was very ill, with, say, intestinal obstruction, and passing much sugar and acetone bodies, and the operation could not be delayed, the dose of sugar should be increased to 100 g. and 100 units of insulin should be given. It was in this type of case that estimations of blood sugar were most valuable both before operation to ascertain the height of the blood sugar, and after to learn the effect of the anaesthetic. The patient would need big doses of insulin after the operation if coma was to be prevented, and it was a great advantage if the blood sugar could be estimated at frequent intervals.

Correspondence

Carbachol and its Antidote

SIR,—In the annotation on carbachol and its antidote (May 5, p. 636) the statement that atropine is an effective antidote against carbachol poisoning requires qualification.

Atropine will antagonize the muscarinic actions of carbachol, but requires more time to do so than it does to neutralize those of mecholyl. The reason for this is probably that carbachol is not affected by cholinesterase. Furthermore, atropine cannot block the nicotinic action of carbachol on ganglia, which action is relatively feeble in the case of mecholyl. In the case of the muscarinic action there is probably a quantitative factor, and the dose of atropine required increases to some extent with the dose of carbachol. It would therefore seem that to be sure of effective action of atropine against moderate doses of carbachol the former drug would have to be injected before the latter. The nicotinic actions would be left untouched.

When, by mistake, the dose of carbachol given is of the order of two hundred times the therapeutic amount the patient exhibits often a phase of severe hypertension. Carbachol is a useful, but none the less dangerous, drug, and should collapse occur following its use atropine is no certain guarantee of survival, although in many cases it will gradually relieve the collapse. Special caution in the use of carbachol is needed. The two unfortunate mishaps which have been reported as having occurred from mistaken injections of the iontophoresis dose instead of the proper subcutaneous dose would probably not have been averted by the use of atropine.—I am, etc.,

London, W.1. HUGH DUNLOP.

Convalescent-home Accommodation

SIR,—In pre-war days it was commonly stated that there was a scarcity of convalescent-home accommodation for hospital patients of both sexes and all ages; so much so, indeed, that one often heard hospital almoners complaining of the great difficulty in obtaining convalescent treatment for patients about to be discharged from hospitals who were really unfit to return to their own homes and still less fit to return to their normal occupations. For this reason also many patients occupied beds in hospital longer than was necessary for hospital treatment, thus substantially reducing the annual turnover of beds, and consequently many patients were kept waiting much too long before admission to hospital. In other words, the hospital accommodation was not being used to the best advantage of the community, owing to the lack of suitable convalescent-home accommodation.

During this war considerable additions have been made to convalescent-home accommodation for the benefit of Service patients. For example, the War Organization of the British Red Cross Society and Order of St. John have at the request of the Ministry of Health provided more than 200 convalescent homes containing over 12,000 beds and more than 20 residential nurseries for delicate children under the age of 5 evacuated from London. These convalescent homes are scattered throughout the whole of England and Wales, so that every county has one or many more. They are mostly country mansions, adapted, equipped, and maintained, and (practically speaking) wholly paid for out of the Ministry of Health annual vote. Some are civilian convalescent homes at seaside resorts taken over by agreement for the duration of the war. Up to a recent date more than five million pounds has been paid by the Ministry of Health to the War Organization for the adaptation, equipment, and maintenance of these homes and residential nurseries.

All the convalescent homes and residential nurseries which I have visited are admirably adapted and well equipped for the purposes for which they have been provided, and there is no doubt they have been much appreciated and of immense benefit to the Service convalescents as well as the evacuated children under 5.

The time is now rapidly approaching when many of these convalescent homes will be closed down owing simply to the fact that the beds are no longer required for the convalescent Service patients or evacuated children, and ultimately of course the whole lot will be closed down when the last of the con-

valescent Service patients are discharged and the evacuated children under 5 return to their own homes. Bearing in mind the great shortage of convalescent-home accommodation in pre-war days and the very important fact that over five million pounds of public money has already been spent during the war on these "homes," it seems a thousand pities that, so far as I know, no attempt has been made by the Ministry of Health to arrange for these well-equipped places to be used for convalescent civilian patients from our hospitals after they are no longer required for convalescent Service patients and evacuated "children under 5." I fully realize that the owners of some of these adapted mansion houses and the management committees of the pre-war convalescent homes will desire their release as soon as conveniently possible, but it is equally certain that for obvious reasons a considerable number of the adapted mansion houses will never be occupied again by those families to whom they belong. In these circumstances surely it is worth while taking the necessary steps to secure the use of some of these well-equipped mansion houses for the benefit of civilian convalescent patients before they are stripped of their equipment and rendered useless for such a highly desirable purpose. The only authority in this country which can take the necessary action is the Ministry of Health, and it is devoutly to be hoped that the opportunity for securing this available and widely spread provision for the much-needed convalescent accommodation will not be lost.—I am, etc.,

Criccieth, North Wales. FREDERICK MENZIES, M.D.

Civilian Mass Radiography

SIR,—Your leading article on civilian mass radiography (April 14, p. 521) was of much interest to those of us carrying out the practical side of the work, but far from the apparatus being an interesting toy with a useful propaganda value the limited number of sets in operation are already performing a valuable function in the detection of the asymptomatic lesion.

There is no unanimity of opinion among the various local authorities and, need I add, among the interested members of the profession as to how these units should be organized. The problems of organization do not seem to be fully appreciated, and even with more apparatus diagnostic units or the more fully developed centres for clinical research are, for geographical reasons alone, except perhaps in exceptional cases, a practical impossibility.

Surely the fundamental function of a mass radiography unit is to detect an abnormality and, once detected, to pass the patient on either direct or through his own doctor to the appropriate and equipped centre for full and complete investigation—a procedure as suggested in Memo. 266T. As a separate centre for clinical research a whole team of medical personnel would be necessary, and it is not difficult to visualize that this promising infant would develop prematurely into a monster with bronchoscopy, electrocardiograph centres, etc., and before long special mass radiography hospitals.

In the mass radiography organization, unlike the Services, the attitude of the general practitioner must be considered, and it would be interesting to know whether, in a centre for clinical research, the patient's doctor is to play an active part or to be completely by-passed with or without even a letter informing him what action is being taken. In the organization of my own authority all persons requiring investigation are referred to their private doctor, as it is felt that the latter should be intimately associated with the general development of the scheme. I have heard it said and seen it stated in correspondence that this is the correct procedure; the following appeared in a letter in the *Journal* of Sept. 30, 1944: "The private medical attendant can best decide, on the basis of the report and his clinical observations, whether care and notification are necessary, or only an old lesion is being dealt with and secrecy can be maintained without danger to others."

During the past eighteen months the unit allocated to my authority has covered practically the whole of the County of London from eight static centres. Due in part to the specially abnormal conditions existing in London and the area surveyed, organization had to be somewhat different from that advocated in the M.R.C. report. No clinical work so far as the mass radiography unit is concerned is undertaken by the medical director. All full-size films are discussed by a panel comprising, apart from the medical director, the consulting radiologist for the council, a tuberculosis specialist, one general physician, and any tuberculosis officer in the area under survey who may care to attend. All individuals who in the considered opinion of the panel exhibit a significant lesion as judged by the skiagram, and a history, taken at the time of attendance for a large film, are referred to their own doctor with the *x*-ray films and report and suggestion as to further procedure.

Admittedly follow-up statistics and ultimate fate of individuals with minimal and other lesions are at a great disadvantage in the civilian unit as compared with the Services with their disciplined and organized population. The civilian is a free agent, and as he probably feels quite fit may elect to do nothing, remain under the supervision of his own doctor, or attend a private consultant rather than a tuberculosis dispensary. Information, however meagre, even on the immediate fate of these people is entirely dependent on voluntary co-operation, and I fully realize that an accurate follow-up over a period of years will be extremely difficult, if not impossible. But, however many the drawbacks, let us use mass radiography as, I believe, was the original intention—simply as a sieve to isolate those who need further investigation, leaving it to the existing services to complete the investigation and supervise these cases.—I am, etc.,

Public Health Department, L.C.C., London, S.E.1. J. STUART ROBERTSON.

SIR,—I have been greatly interested in the leading article on this subject and in the correspondence which has followed its publication.

The mass radiography centre of the Glasgow Public Health Department has, in its relation to tuberculosis, become in effect a sixth tuberculosis dispensary within the city. Its medical director has retained in his present post the facilities he had as a tuberculosis officer for observing patients in whom either the diagnosis of tuberculosis or the question of activity of a tuberculous lesion was in doubt, and for recommending patients directly for treatment or observation in hospital. Undue delay in admission of patients with early lesions to hospital is obviated, even in these days of long waiting lists, by his having a certain number of beds earmarked for the use of patients discovered by mass radiography. Patients are referred to the ordinary tuberculosis dispensary only after their dismissal from hospital or after a period of several months' observation at the mass radiography unit, if it is then decided that further follow-up is necessary.

It will be seen, therefore, that the patient does not require to go to the tuberculosis officer for the area in which he resides to obtain corroboration of the diagnosis. With this exception the administration of mass radiography in Glasgow is very similar to what Dr. Beynon has outlined for Nottingham in your issue of May 5 (p. 639), and the medical director here has the same close liaison that Dr. Beynon has with tuberculosis dispensaries, a cardiac clinic, the hospitals, and the bacteriologist.

I am definitely not in agreement with Dr. G. Lissant Cox (April 28, p. 605) in his view that the mass radiography team should leave arrangements for detailed diagnosis and treatment to existing chest clinics. This may be the most satisfactory administrative method for a county area, but it is certainly not required in large towns. In Glasgow it would add unnecessarily to the work of sadly overburdened dispensaries and *x*-ray departments. Further, is it not desirable that a patient who has probably paid three visits to the mass radiography unit, for miniature film, large film, and medical examination, should on the last occasion be given an opinion as to his condition and future treatment, and not have to undergo further review by another medical officer before a decision is made?—I am, etc.,

Glasgow. ALEX. MACLEAN, Medical Director, Mass Radiography Centre.

SIR,—I have read the letters on this subject with interest and have been waiting for one of the "authorities" to come down to earth and discover that he is dealing with human beings and not a herd of animals. Except in a few cases each of these human beings has his own doctor of choice, who can probably give a full clinical history of his patient and would be of great help in assessing the case. In most cases, however, the patient's

own doctor is ignored until the case has been passed from one "expert" to another and the patient's future has been decided upon.

I quote two instances from my own practice. I received a letter from the local mass radiography centre to say that as Mrs. A.'s miniature film was abnormal she had been recalled for a large film and clinical examination. A diagnosis of bronchiectasis was made, but the thoracic surgeon did not advise active measures on account of the general condition of the patient. On receipt of this letter I turned up my notes, and found that several years previously at my first examination I had written: "Bronchiectasis of both lower lobes, general condition poor, very nervous." In the second case Mr. B.'s miniature film was abnormal, and the letter from the centre runs: "I recalled him for a large film and clinical examination. When I did this I did not, of course, know that he had been in a T.B. sanatorium nine years ago." The man was examined and his B.S.R. done, and it was decided that there wasn't any marked activity at present. The patient had been examined at intervals by his previous doctor, by the tuberculosis authorities, and by me, and each one of us could—and did—reach this decision, and also could have prophesied what lesions would be seen in the radiograph. Both these patients thought they were bound to undergo all these investigations. It is true that they were asked to go, but we all know how requests from official sources can sound like commands. These are the only letters I have received, although probably several hundreds of my patients have undergone *x*-ray examination at these centres. It took me several weeks to allay Mrs. A.'s fears.

I freely admit that there may be a proportion of "missed" cases discovered by mass radiography, but I am sure that most of the "previously undiagnosed" discoveries are in people who had not been to their doctors for some time. Mass radiography can be a very useful weapon against pulmonary tuberculosis, but let us use it in the right way. May I, with the greatest trepidation, make a suggestion as to the routine to be followed in mass radiography? Mr. A. goes to be examined. His name and address are taken and he is asked if he has ever been treated for tuberculosis (the question can be worded in many ways to avoid the "T.B. complex" if so desired). The name and address of his doctor are entered on the record card. When the small film is examined the doctor is notified whether it is normal or abnormal. If abnormality is reported, surely it is entirely a matter for the patient and his doctor to decide what further action is to be taken. Further investigation can be made through the usual public health channels or privately at the patient's wish and expense.—I am, etc.,

Bristol. WALTER WOOLLEY.

Conservative Treatment of Tuberculosis in a General Hospital

SIR,—The present shortage of sanatorium beds has been the subject of much discussion and anxious thought on the part of those concerned with the treatment of pulmonary tuberculosis. It has often been found that during the time which usually elapses between diagnosis and admission to a sanatorium the patient's condition deteriorates, and he occupies a sanatorium bed for a longer time; or the consequences may be even more serious. It would seem that this evil cannot be overcome without more beds, yet much may be done to mitigate its effects. Where the prognosis is not hopeless when the patient is first seen, it is our experience that deterioration is rare and improvement not unusual provided strict rest in bed is ordered and observed during the whole of the waiting period. In such circumstances collapse therapy is seldom a matter of urgency except in some cases of haemoptysis.

It is when the waiting period is spent in a general hospital particularly that the second danger is added. There too often the practice followed is recklessly to attempt to establish a pneumothorax without the knowledge, experience, and facilities necessary for the wise selection and management of cases and the recognition and treatment of complications. Much more harm is often done in this way than would have been the case had conservative treatment been adopted until admission to sanatorium was possible. To illustrate this point we quote our experience with the cases sent to us from one general hospital which has a distinguished medical staff:

Between September, 1944, and March, 1945, we received ten patients from that hospital, with one exception ex-Servicemen who were admitted there for treatment pending transfer to a sanatorium. In nine of them artificial pneumothorax had been embarked on there, and in seven quite clearly mismanaged. As a result the chances of recovery had been lessened in, at the very least, two, of whom one has died. Four of the seven, although in a precarious condition, had not been confined strictly to bed, and the patient who has died had been allowed home on week-end leave, although a month before spread of disease to the other lung had been noted. But the best example of the dangers of over-enthusiastic active treatment in inexperienced hands is provided by the following case. Pulmonary tuberculosis was discovered while the patient was a prisoner of war in Italy, and he spent a year in hospital in enemy hands, where he was treated on conservative lines. Repatriated last July, he was sent to that same general hospital, where a left artificial pneumothorax was induced. It was found that much of the upper lobe of the left lung, to which the disease was almost wholly confined, was directly adherent to the chest wall. At that stage the A.P. would have been abandoned by almost every physician with experience in that form of treatment and thoracoplasty contemplated. Instead the pneumothorax was maintained, and, worse still, ill-advised attempts at pneumonolysis resulted in haemothorax followed by tuberculous empyema and an atelectatic lower lobe, which is unlikely to re-expand. More recently the disease has spread to the other lung, and the prognosis is now hopeless.

We cite the foregoing series of cases because it illustrates so well the points we wish to make, and not because we think it is unique; in fact, though the twin bogies "air embolism" and "pleural shock" fortunately are seldom found outside the lecture room, the numerous common dangers may go unremarked in the medical schools. This appears to be a reasonable conclusion when such a note as the following accompanies a patient admitted here for adhesion section from a well-known teaching hospital: ". . . there were adhesions in the lower part of the thorax. About 300 c.cm. of air every three days has been necessary to maintain a *positive* pressure and to prevent expansion of the lung. . . ." The patient on admission was febrile, had a positive sputum, extensive adhesions at all levels, a turbid, sterile effusion, and a partially atelectatic lung.

Uniform success in the treatment of pulmonary tuberculosis attends none of us, but some of the bad results are not unavoidable. We feel that when we may expect the waiting lists to be swollen by the return of many tuberculous ex-prisoners of war we are justified in pleading that our medical colleagues, however distinguished in other fields of medicine, who have to treat these patients temporarily, should not be obsessed with what may seem urgent indications for collapse treatment, but more mindful of the importance of strict rest in bed, even in these days of acute shortage of nursing staff.—We are, etc.,

W. L. YELL.
R. S. MCDADE.
T. A. C. MCQUISTON.
R. H. S. HIRST.

Essex County Hospital, Chelmsford.

Artificial Respiration

SIR,—I do not want to take up valuable space in the *Journal*, but I do wish to point out that Schäfer's method has stood the test of time and experience and has given uniformly good results.

During the last year I have seen two young sailors who were subjected to underwater explosions when their ship was torpedoed. They were picked up in an unconscious condition by a trawler, some of the members of whose crew performed on them the mechanical method of artificial respiration advocated by Eve. The patients were transferred to hospital, and on their arrival at port their condition was desperate. One of the patients died two hours after admission, and necropsy revealed four perforations of the small gut with intestinal contents all over the abdominal cavity. The other patient recovered sufficiently to warrant surgical intervention. Laparotomy showed three perforations of the terminal ileum and one in the outer wall of the caecum. Although the perforations were small, the whole peritoneal cavity was full of faeces. The perforations were sutured, and all known methods to combat shock and peritonitis were instituted. The patient died two days later from general peritonitis.

There is not a shadow of doubt in my own mind that the "rocking method" of artificial respiration adopted in these two cases deprived these men of any chances of recovery. Medical men may employ any method of artificial respiration that they consider best, but is it justifiable to teach the lay public a method which is very dangerous under many conditions? The laity are not competent to diagnose surgical con-

plications, and, therefore, any method of artificial respiration taught them should be simple and fool-proof and should have stood the test of time.—I am, etc.,

London, W.1. CECIL P. G. WAKELEY.

Sulphonamides in Measles

SIR,—The writers of the letters extolling the use of sulphonamides in measles appear to ignore the importance of controls in assessing the value of a drug. The score or so of cases I have seen in children in the recent epidemic were all treated by cutting off all food and drink except water, sugar, and fruit juice until the temperature was nearly normal. Some of them had expectorant cough mixtures, others sedative cough mixtures, and the rest no drugs at all, but this slight variation in treatment seemed to make no difference to the course of the disease. All the cases were as mild as those described by Dr. Frankland West (April 21, p. 567).

It may be that if sulphadiazine had been withheld from some of the cases described the course of the illness would have been more severe, but proof of such a theory is completely lacking.—I am, etc.,

Binfield, Berks. L. G. JACOB.

Oxaluria

SIR,—I was much interested in the article by Lieut.-Col. J. M. Black (April 28, p. 590) on the cases of oxaluria treated by him in India in 1943. He has rightly emphasized the importance of adequate fluid intake, and the avoidance of oxalate-containing foods in order to prevent oxaluria. There is one possible factor in oxaluria production which he has not mentioned, and which indeed seems seldom referred to in British medical literature, but which I have reason to think is very important. Prof. Herter in his *Lectures on Chemical Pathology* (1902) tells how his assistant, Dr. Helen Baldwin, produced oxaluria experimentally in dogs by giving them large quantities of cane sugar or glucose until a state of excessive fermentation accompanied by gastritis was produced, and gives it as his own opinion that "human oxaluria may arise during carbohydrate decompositions in the digestive tract under conditions at present imperfectly understood"—one of which may be "permanent diminution or absence of free hydrochloric acid in the stomach contents." My own experience in examining urines in the laboratory of this hospital leads me to think that this enterogenous formation of oxalic acid from excessive use of sugar, and perhaps even from excessive use of other carbohydrates, is far more common than is generally appreciated. Patients who are guiltless of partaking of such exogenous sources as rhubarb, spinach, etc., may show considerable oxaluria.

A case which came under my notice in May, 1944, may be of interest in this connexion. H. B., aged 48, a plumber in the employment of this hospital, noticed in March, 1944, that every evening after about 4 p.m. his urine became very red. His morning urine was normal in colour. This state of affairs continued for about three months, during which time he began to feel listless and lacking in energy, so that he became alarmed, and finally on May 4 presented himself at the accident dispensary of the hospital. He was cystoscoped, but no calculi were seen. Cystoscopy was again done on May 13, and a pyelogram taken, with negative findings. On account of his occupation he was sent to me for count of R.B.C., W.B.C., etc. There was no evidence of plumbism, but on examination of his urine I found oxalate crystals, as well as blood, present. I questioned him as to his diet, and found he was taking what seemed to me to be excessive quantities of sugar and other carbohydrates, as well as a good deal of strong tea. I advised him to modify his diet regarding these particulars, and gave him a little potassium citrate for a short period, asking him also to include a fair amount of ordinary vegetables (free from oxalic acid) and vegetable broths in his daily menu. After about four days haematuria ceased and has never since returned, and examination of urine on several occasions subsequently showed absence of oxalates, while his general health has returned to normal. It is true that his use of strong tea laid him open somewhat to exogenous oxaluria, but I think his excessive carbohydrates contributed largely to his condition. In the same way I would consider that the sugar content, no less than the cocoa content, of the chocolates used by Lieut.-Col. Black's patients is to be looked on with suspicion; oxalic acid might be formed from excessive sugar through sheer inability from any cause to oxidize glucose—to go no further with explanations. It is well known that diabetic patients frequently exhibit oxaluria. Neville's findings of oxaluria in cases of vitamin B deficiency are intelligible on this basis—oxidation of carbohydrates being necessarily slowed down under such a condition. Bacterial action is also a possibility in formation of oxalic acid from sugar.

I agree with Lieut.-Col. Black that it is useless to try to control oxaluria by reducing the calcium intake. Indeed, if sources of oxalic acid—exogenous and endogenous—are not avoided, reduction of the calcium intake may be a serious mistake, as in that case calcium may be abstracted from the bony framework in order to neutralize the oxalic acid. Oxalic acid, not calcium, is the primary sinner. But if oxalic acid for any reason tends to be introduced in excess, I would think it good therapy, in order to avoid formation of the insoluble calcium oxalate, to provide the system with a rational amount of sodium and potassium salts, which will tend to sweep away the oxalic acid in soluble form. A reasonable proportion of non-oxalic-acid-containing vegetables in the diet should help materially in this direction. Quite possibly the non-appearance of blood in H. B.'s urine in the morning hours was due to the well-known tendency of the system to be more alkaline after sleep and warmth. There may be, perhaps, some risk of running into the opposite danger of formation of phosphate crystals if excessive vegetables are taken, but all virtue, we are told, is a mean between two vices.—I am, etc.,

Royal City of Dublin Hospital. E. HARVEY.

Intravenous Pentothal in Placenta Praevia

SIR,—If Dr. J. Campbell (May 5, p. 642) reads the article by Majors S. O. Aylett and A. F. Alsop in the *Journal* of April 21 (p. 547) he will find that these surgeons describe pentothal as being "an ideal anaesthetic for abdominal operations in shocked patients." On the other hand, Crooke, Morris, and Bowler (*Journal*, Nov. 25, 1944, p. 683) prefer cyclopropane and oxygen, an anaesthetic which I also recommended in my letter. Evidently these latter observers are not favourably impressed with pentothal in cases where shock exists, which shows that experiences differ. Perhaps our favourable impression of pentothal in these exsanguinated cases can be accounted for to some extent by the glucose-saline which is given intravenously throughout the operation at the same time as the pentothal. Although the fluid administered in this way is probably beneficial, yet in those cases of retained placenta where shock is often present and manual removal is necessary pentothal is given without the saline; and so far we have seen no evidence in this institution that this form of treatment has been associated with increased shock.—I am, etc.,

County Maternity Hospital, Bellshill. S. J. CAMERON.

Barotrauma

SIR,—The correspondence on barotrauma has been followed with close interest. Some interesting discussions and important observations have been made. Whether one uses the term "otitic barotrauma," "tubo-tympanic pressure syndrome," "aural barotrauma," "anisobaric otitis," or, to keep in the fashion of mutilating the King's English, merely O.B., the fact remains that the condition is of great importance in aviation, both Service and civil.

I cannot agree that the condition is an inflammation, seeing that an acute inflammatory process is one which may proceed to pus formation. Such a sequel has not been reported, except when the area has been secondarily infected. Passive hyperaemia or congestion, yes; but inflammation, no.

It is interesting to note the percentages of visible auto-inflation mentioned by McGibbon. A recent survey of 2,500 cadets, who had been fully instructed in Valsalva's manœuvre and who had practised auto-inflation by this method before ascending to altitude in a decompression chamber, showed that only 32 (1.28%) had any subjective or objective symptoms of barotrauma. Those affected showed all the clinical stages of the syndrome: (1) Hyperaemia of the tympanic membrane with slight retraction relieved by auto-inflation at ground level (3=0.12%). (2) Moderate retraction of the membrane, hyperaemia of the mallear region with occasional small bullous formation in the posterior quadrant (21=0.84%). (3) Gross tympanic retraction, congestion of the membrane, serous or haemorrhagic bullae or exudate into the middle ear with residual deafness at ground level (8=0.52%). No case of rupture of the tympanic membrane was observed.

It will be seen from these figures that auto-inflation by Valsalva's method, if correctly performed, is a reasonable prophylactic against barotrauma. The use of a Politzer bag while flying is excellent in theory but not in practice. Not only would it be an additional item of equipment, but it is not always successful, as may be seen when endeavouring to inflate the middle ear by politzerization in severe cases of barotrauma.

The answer to the problem is to avoid, so far as possible, the onset of the condition. This may be done by teaching aircrew (and passengers) the simplest effective method of auto-inflation and to "ground" anyone unable to ventilate the middle ear satisfactorily, whether due to barotrauma or to upper respiratory infection. If the condition should then arise and be diagnosed, the term "otitic barotrauma," although it may not be terminologically exact, does describe the syndrome and rolls off the tongue as easily as "tubo-tympanic pressure syndrome" or any other such designation.—I am, etc.,

M. E. GORDON, Fl. Lieut.

Newer Concepts of Breast-feeding

SIR,—I have read Dr. M. Witkin's article (March 31, p. 441) and the varying, though in most respects diametrically opposed, views of Dr. R. O. Barber (April 21, p. 566), Mr. Eric Coldrey, and Miss Isabel Wilde (April 14, p. 530) with interest. I consider satisfactory breast-feeding and any constructive aid thereto to be of paramount importance, and would like to put forward the following observations.

Taking only mothers who are keen to feed their babies, I would say that breast-feeding fails (*a*) because of "trouble" with one or both breasts, and (*b*) only in a minority of cases because there is insufficient milk. By "trouble" I mean primarily engorgement and the cracked nipple, the latter often being due to the baby being presented with an engorged breast which it cannot possibly "get on to" in the proper manner, this resulting in a chagrined chewing of the nipple which is sooner or later bound to produce a crack. I view engorgement as a complication which is unfortunately common, which is avoidable, and which ought to be avoided at all costs; I am certain the following regime does this and provides a sound approach to satisfactory breast-feeding.

The expectant mother should be shown by some competent person how to express her breasts, and she should do this twice a day for at least the last fortnight of her pregnancy. This prevents the ducts getting blocked by inspissated secretion, and, if an emollient such as arachis oil be used, keeps the areola and nipple pliable. I am assuming that the days of the nail-brush, however soft, and the bottle of methylated spirit are dead and gone for ever. I would like to insert here my abhorrence of such "hardening" agents as the much-used tr. benz. co. in the treatment of cracked nipples; I have found ung. hydrarg. ox. flav. excellent for this purpose, it being both an emollient and a mild, bland antiseptic.

Next, I am quite certain that both breasts should be used at each nursing. Five minutes at one breast, ten minutes at the other, then finishing with a further five at the original breast I consider to be the ideal arrangement. Dr. Barber states that "it is not until the babe has been to the breast for two minutes that the milk begins to flow": this just is not true. I can state as a fact that, if questioned, three out of every five nursing mothers with breast-feeding established experience what is termed (at least by the ladies of Lambeth) the "draught"—that is, the feeling of the breast filling up and in many cases the passive secretion of quite copious quantities of milk at times when the babe is due to come to the breast. In view of this I firmly believe it wrong to empty one breast and leave the other.

One problem I have often encountered is when the babe for some reason (e.g., after a difficult forceps delivery) is not considered fit to be taken to the breast for forty-eight hours or so after delivery. How often are the wretched mother's breasts left unattended for these forty-eight hours, with resulting engorgement and the sequelae depicted above? In such cases both breasts should be expressed at such times as the babe will be coming down, so that when it arrives it finds soft, pliable breasts with milk secretion, partially at least, already established, instead of a pair of hard, hot, painful balloons.

I disagree with Dr. Coldrey if by his concluding paragraph he infers that he says to his mothers: "Here's your babe, now feed it." Breast-feeding is, I know, a natural biological and physiological function, but the ignorance of most primiparae is immense, and I think it is a matter which, if we are to increase our most unsatisfactorily low percentages of fully breast fed babies, needs a very great deal of skill, patience, and experience. —I am, etc.,

St. Thomas's Hospital. MICHAEL PALLOT, D.R.C.O.G.

Women in Labour

SIR,—I feel that a sense of proportion must be reached in endeavouring to make labour painless. There is a danger, partly due to the publicity campaign for analgesia and partly due to labour being made to appear more pathological by insisting on hospitalization, that labour will become more painful, and therefore will require more analgesia. I am, personally, very insistent upon analgesia being given where necessary, but I feel that there is less required where the patient has been prepared by a calm conduct of the antenatal period. The power of the mind on sensitivity to pain is very strong, and, incidentally, too much "fussing" antenatally can make a patient apprehensive and therefore more sensitive to pain. It would be an advantage if, in the hearing of the mothers, the term "contraction" were used instead of the word "pain," the usual reference to "good pains" being calculated to upset a certain number of patients.

I fully endorse Dr. Florence McClelland's view (April 28, p. 607) that there is no universal analgesia for every case, and agree that a resident anaesthetist should be included on the staff of maternity hospitals. If hospitalization is to become the routine—and in view of the lack of home helps I feel that it is a necessary evil—the accommodation in hospitals must be radically altered. Every maternity hospital should have one or more "first-stage" rooms, so furnished that there is an atmosphere of a home and not the stern barrenness of hospital. By this I mean no tiled walls, many comfortable chairs, and recreational interests. There is no more distressing case than the patient who comes into hospital too early in labour and who has a prolonged labour solely due to the psychological inhibitions of hospital atmosphere on the uterine contractions. —I am, etc.,

Liverpool. JOHN HAMILTON.

Institutional Maternity Service

SIR,—Dr. Laura Hutton (May 5, p. 639) has made a useful contribution. There can be no question that "hygiene and asepsis have been allowed to outweigh all else in the modern development of maternity technique." She has done well to raise the issue of neonatal psychology. I venture to make the following observations.

1. The more we get away from the natural and the obvious, the more do we encourage an artificial attitude towards motherhood. Our changing social life may make institutional maternity frequently, or even generally, desirable, but let us refrain from pretending that this is a progressive step for which no price has been paid. We are converting an experience of rich emotional possibilities into a cold-blooded surgical episode, and we have no right to do so unless the change can be justified by convincing statistical proof rather than mere scientific theory. So far such proof seems to be lacking.

2. Breast-feeding is favoured and indiscriminate artificial feeding discouraged by all the highest authorities. Their grounds for doing so are chiefly physiological. But the psychological benefit to both mother and child is no less important.

3. The vogue of "rolling new-born babies into tight little mummies" is neither confined to institutions nor is it new. Swaddling clothes have been used for thousands of years and are still used in many countries. Dr. Hutton is no doubt correct in her psychological interpretation of the effect. But it seems to me that this also is a question of discrimination. The baby with an aggressive temperament will endure much environmental stimulation without damage to character development. He should be free from the beginning. But the infant of sensitive and apprehensive temperament needs security first of all. The mother's arms are the natural agents of this security. Failing them, I am prepared to believe that such infants benefit from habitual constriction—of course within

physiological limits. But it is to expect too much of nurses and mothers to base a technique on such close observation and fine differentiation. Let us not, however, accept either system—free or swaddled—as an invariable rule or as a universally progressive step.—I am, etc.,

London, W.1. H. CRICHTON-MILLER.

Organization of Research

SIR,—The letter by Dr. G. Arbour Stephens (April 14, p. 535) implies that there is considerable risk that anyone who does original work may lose credit for it by submitting it to a central organization. In practice, however, most original work has to be disclosed, in its early stages, to one of the bodies that finance research. If the filtering of ideas is to be feared under these circumstances, I have not encountered an instance in twenty-one years of full-time research. In practice I have always found that research workers discuss their ideas readily among themselves, without any thought of ulterior motives. Undoubtedly there is a standard of honour in such matters that gives the best possible protection against unjust claims.—I am, etc.,

Glasgow Royal Cancer Hospital. P. R. PEACOCK, Director of Research.

Social Study of Hospital Treatment

SIR,—My attention has just been drawn to the interesting account by Dr. Malcolm Brown and Mrs. Freda Carling (April 7, p. 478) of the after-care of patients who had attended the Radcliffe Infirmary.

The medical care of the discharged hospital patient, as the Oxford survey shows, is of such importance to-day that your readers may be interested in a similar study, though wider in scope, undertaken by the Syracuse University College of Medicine in the United States. The study was initiated in July, 1940, and involved all patients discharged from the medical wards of the University Hospital up to February, 1942. It was undertaken after a preliminary survey had revealed that 90% of the cost of service on the general medical wards at the University Hospital was for chronic illness, and that only a third of these patients were receiving satisfactory medical supervision after discharge.

The hospital appointed an "extramural" resident (Dr. Frode Jensen) to familiarize himself with the medical aspects of these patients and relevant emotional, social, and economic factors, and to continue the medical supervision of the patients in their homes after discharge. At the beginning of the experiment the hospital social service department assisted in the provision of social service, but it soon became manifest that the volume of this kind of work was far too heavy a burden on the already overworked hospital social service department, and a special social investigator was appointed (Margaret A. Thomas, M.A.). The number of patients involved was 902.

The main finding was that because of proper care in the home many patients could be discharged from the hospital earlier and rehospitalization was greatly reduced. The saving in hospital costs was about three times the cost of the experiment, or, viewed in another light, sufficient hospital facilities were released to permit the acceptance of several hundred additional patients. Of even greater importance was the better medical care received by the patients.

The story of this experiment was published by the Common Wealth Fund last year under the title of *Medical Care of the Discharged Hospital Patient*, by Frode Jensen, M.D., H. G. Weiskotten, M.D., and Margaret A. Thomas, M.A. Because of the demands of the military service for younger graduates in medicine, the programme was temporarily discontinued in 1942, but there is little doubt that the service will be continued as soon as conditions permit, not only because of its value to the patient but also because of the economic saving it effected.

It is interesting to note that this experiment in medical care was originally undertaken as the result of a teaching exercise introduced in the curriculum of Syracuse University College of Medicine in 1930. This exercise is still in effect to-day. At that time, because certain faculty members believed medical education was becoming too institutionalized and that there was too great a tendency to stress disease rather than the patient suffering from the disease, a programme was introduced into the undergraduate curriculum which placed on each student the responsibility of making a complete study of at least one patient who had been assigned to him during his service in the medical wards of the hospital. The study required the personal investigation by the student of the home and the living and working conditions of the patient, careful consideration being given to the hereditary, environmental, social, and economic factors which might play a significant part in the patient's illness or recovery.—I am, etc.,

MARGARET A. THOMAS.

Shall We Nationalize Medicine?

SIR,—In her criticism of my letter (April 14, p. 535) pointing out the possible advantages of a national medical service, Dr. Alcock (April 28, p. 610) implies that she is in favour of maintaining the *status quo*. The fact remains, however, that the public do, apparently, desire such a service, and as the doctors were made for the people and not vice versa it is difficult to see how we can deny them their wish. The point I wished to make was that if a national medical service is to be instituted, despite all arguments to the contrary, then it is incumbent upon us to see that the conditions are made as favourable as possible, and that the state of partial slavery which has hitherto existed is not perpetuated. I consider that limitation of working hours and the dissociation of surgery premises from the home should be insisted upon in any agreement with the Government.

With regard to the patient, I cannot agree with Dr. Alcock that he would be worse off than at present. From personal experience in five different counties of England I have come to the conclusion that the patients of a single-handed doctor are often greatly inconvenienced by such occurrences as the illness of the doctor or his prolonged detention at midwifery cases, etc.

I entirely agree that it would be most undesirable to curb a doctor's potentialities by unduly limiting the size of his practice and paying him a fixed salary. For that reason I would propose a basic salary, plus a capitation fee for each patient. As regards those men who really feel that they are not being true to their calling unless they are always on duty, I can see no serious reason why they could not be allowed to indulge in their most admirable desire.

I am not a pessimist, nor the cynic that Dr. Alcock implies, but I have seen a great deal of very real distress among the members of our profession; and I do think the time is ripe for us to realize that the desire for reasonable working conditions is by no means incompatible with the maintenance of high ideals and a deep interest in one's work. Whatever his youthful standards may be, there comes a time in almost every doctor's life when he is physically and mentally incapable of living up to them, and the sooner we confess that we are men and not supermen the better for everybody concerned. Let us give full scope to our potentialities by all means, but at the same time let us refrain from turning our lives into mere tests of endurance, which can end only in the dissatisfaction and pity of our patients and the distress of ourselves and our families. Martyrdom is a thing of the past, the age of common sense and moderation has arrived.—I am, etc.,

Blackpool. H. DAKIN.

"It Can Be Done"

SIR,—In 1943, when I published a paper urging the obsolescence of ether and chloroform in anaesthesia, much obloquy was poured on my head for suggesting the possibility of using anything else in "pitching destroyers" or "desert tents," etc. I was exceedingly interested to read Major Rex Binning's account of 120 abdominal operations with pentothal–cyclopropane in forward areas during the Middle East campaigns, published in the *Journal* of May 6, 1944 (p. 620), particularly as I had repeatedly offered to design a portable cyclopropane outfit for field use previously. I was further greatly interested to read the paper by Majors Aylett and Alsop (April 21, p. 547) describing 56 consecutive abdominal casualties anaesthetized with pentothal alone in the forward areas in the present campaign in Europe, with, I venture to suggest, an uncommonly low mortality rate.

I feel that these papers go far to vindicate the main theme of my paper in the *Lancet* of Dec. 11, 1943: "Ether is now best avoided wherever possible, and in future should be eliminated altogether from our techniques"; and to confound my

chloroform-and-ether addicated castigators of the subsequent correspondence. May I heartily congratulate the authors of the above papers on their skill, their progressive attitude, and their determination to improve the technique of anaesthesia. *It can be done.*—I am, etc.,

Park Prewett Hospital, Basingstoke. F. BARNETT MALLINSON.

Nursing in the New Health Services

SIR,—Large posters declare the dearth of nursing service. The following remedies, among which "two-tier nursing" is the chief innovation, may commend themselves to the profession.

1. The sole passport required from applicants is a *sense of vocation.* Many young women seem in their element when nursing. They display a spirit of succour which finds a natural expression in tireless tender care and is absolutely reliable and trustworthy. But often, sad to say, this is lacking in hospital and nursing home alike. Is not this to be expected when the authorities put the emphasis on scholastic qualification and make the school certificate a *sine qua non*? Surely the indication is to welcome to the profession all who are "born nurses," whether endowed with scholarly gifts or no, and give them a corresponding training and status.

2. Entrants would then be sorted by their interviewer according to their scholastic standard into those without and those with school certificate. The former would only take a short course and become *assistant nurses,* while most of the latter would, presumably, take the long course and become *fully trained nurses.*

3. Definitions of training.

(a) Assistant Nurse

Although an innovation, this new rank is but equivalent to making a permanent peacetime feature of the "nursing auxiliary." Moreover, to those of us in the know, it is obvious that only by tapping some such additional sources can we recruit the numbers needed to implement proposed reforms like the reduction of the twelve-hour day. After a preliminary dozen demonstrations in first aid and home nursing, their training would be entirely practical. It would consist of twelve months' medical and surgical ward work, culminating in a *viva voce* examination. On passing this, they would obtain the certificate of qualified assistant nurse. During training they would have all their domestic needs free and be paid, say, £25–£50 a year as pocket money.

Status: They would continue in the less exacting hospital services and domiciliary nursing, receiving a salary starting at, say, £100 a year, with five-yearly increments.

(b) Fully Trained Nurse

i. Preliminary course: About six months would be spent in introductory study of elementary anatomy, physiology, hygiene, disease, healing, ward procedures, practical demonstrations, and ending with an examination.

ii. Two years' practical nursing: This would be an entirely practical and clinical course, to which the nurse could devote her undivided energy and enthusiasm, having completed her lectures already. It would include casualty, out-patient, and, mainly, ward work, but exclude theatre, apart from accompanying patients and watching a good variety and number of operations on, say, twenty-five of those she will nurse. Pocket money should be the same as that for the assistant nurse: say, £25–£50 a year and all domestic expenses found —namely, board, lodging, laundry, and uniform. The training would conclude with an examination mainly practical and oral. Their hospital record would, as with assistant nurses, be taken into account by the examiners.

iii. Status and salary. She would have the title of "fully trained nurse" and a salary starting at, say, £150 a year, rising with experience.

(c) Nursing Specialists

Postgraduate training would be required for more responsible or specialized branches of nursing—e.g., to qualify for such posts as ward sister, theatre sister, as well as midwifery, public health, fevers, tutor, etc. Remuneration would be at an appropriately higher rate.

(d) Male Nursing Personnel

Theatre orderlies: It is to be noted that theatre training would become a postgraduate concern in the nursing profession. Only the minority with a bent for the work would take it up as it was not compulsory. A sister would still run the theatre, but the routine work, including the job of clean-nurse, would be handed over to men—male orderlies. They have, by contrast with average women, a natural aptitude for technical and mechanical procedures and have proved a success where, as at the London Hospital, the system has existed for years.

Ward orderlies: In wards also there may well be a limited number of openings for orderlies in the heavier jobs and, particularly, in male urinary work and chronic defaecatory disorders. Now is the opportune time for standardizing male orderlies.

(e) Elimination of Waste on Ancillary Services

The time has come for saving the wastage of nursing personnel on such ancillary posts as laundry, linen, housekeeping, home-sister, etc., wherein nursing training and talent are superfluous and a domestic science qualification is wanted.

The foregoing proposals may appeal to the profession, and it is hoped, to the General Nursing Council for early consideration. It is most encouraging to find a layman so influential as Lord Auckland pressing, in your issue of May 5 (p. 646), for a higher standard of practical training for nurses.—I am, etc.,

Bristol. A. WILFRID ADAMS.

U.C.H. and Sir William Gowers

SIR,—May I correct your correspondent, Mr. Herbert Brown, who in the *Journal* of May 5 (p. 645) writes: "At the time my hospital training began antiseptic surgery existed in only two London hospitals—University College and King's." Howse (later Sir Henry), to whom I was dresser in 1878, on his appointment as assistant surgeon at Guy's Hospital in 1870 went at once to Edinburgh to study under Lister. When he came back to Guy's he immediately adopted antiseptic methods for his patients there, and his fellow assistant surgeon, Davies-Colley, did the same. In 1874 Howse became full surgeon with sixty beds. Strict Listerism was enforced in all his wards, and by this time the other assistant surgeons at Guy's had adopted antiseptic surgery.—I am, etc.,

Oxford. W. HALE-WHITE.

The Services

Surg. Lieut. M. D. Dawson, R.A.N.R., has been mentioned in dispatches for great devotion to duty and fortitude in the care of the wounded while serving in H.M.A.S. *Australia.*

Surg. Cmdr. E. R. G. Passe and Surg. Lieut.-Cmdr. S. C. Suggit, R.N.V.R., have been awarded the R.N.V.R. Officers' Decoration.

Col. (local Major-Gen.) W. E. Tyndall, C.B.E., M.C., late R.A.M.C., has been appointed a D.M.S., and granted the acting rank of Major-General.

Capt. J. C. Portnuff, R.C.A.M.C., and Capt. S. McClatchie, I.A.M.C., have been awarded the M.C. in recognition of gallant and distinguished services in Italy.

Capt. C. H. K. Daly, R.A.M.C., and Capts. B. Nair and D. N. Vora, I.A.M.C., have been awarded the M.C. in recognition of gallant and distinguished services in the field.

The following awards and mentions have been announced in recognition of gallant and distinguished services in North-West Europe:

M.C.—Capts. H. I. C. MacLean and C. H. Watts, R.A.M.C.

Mentioned in Dispatches.—Brig. (Temp.) H. L. Garson, O.B.E., M.C., T.D.; Brig. (Acting) R. H. Lucas, C.B.E., M.C.; Col. (Temp.) B. J. Daunt, O.B.E.; Lieut.-Cols. (Temp.) J. C. Anderson, K. H. Clark, M. de Lacy, T.D., A. W. Gardner, J. A. D. Johnston, M.C., H. B. Lee, W. R. Logan, T.D., and H. Sissons; Majors (Temp.) L. Aubrey, M.C., A. W. Box, D. A. G. Brown, T. J. Brownlee, J. A. Elliot, E. E. Evans, M. C. Fulton, M.C., I. C. Gilliland, J. M. Henderson, S. T. Henderson, J. Kerr, J. M. Leggate, W. R. McCrae, W. Michie, R. O. G. Norman, I. D. Paterson, G. F. Petty, S. F. Raistrick, N. L. Russell, L. B. Wevill, and E. G. Wilbraham, M.C.; Capts. I. H. Baum, C. J. Champ, J. Clark, F. W. Dickson, J. P. Gannon, H. L. Gardner, T. Gass, E. G. Hardy, G. F. Houston, R. T. Kiddie, K. Misch, A. B. Robertson, T. H. Sansome, G. D. Scarrow, and A. Young; Lieuts. R. A. Condie and E. J. Rogers, R.A.M.C.

DEATHS IN THE SERVICES

Surg. Rear-Adml. JAMES LAWRENCE SMITH, C.B., R.N.(ret.) died at Waterlooville, Hants, on April 28, aged 83. He graduated M.B., C.M. at the University of Aberdeen in 1883 and entered the Royal Navy in 1884. For his services (Suakim, 1884–5) he received the Egyptian medal with clasp, and the Khedive's bronze star, and he later attended Prince Henry of Battenberg in his last illness. He was promoted fleet surgeon in 1900, deputy surgeon-general in 1912, and surgeon-general in 1916. In the following year he was made an Officer of the Legion of Honour, and he retired in 1919, having then been a member of the B.M.A. for thirty years. Adml. Smith received the M.V.O. in 1898 and was created a Companion of the Bath in 1918.

Obituary

LAURENCE CHRISTOPHER PANTING, who died on May 4, was for many years a leading surgeon in Cornwall. He was born in Staffordshire in October, 1869, son of the Rev. Laurence Panting, and from Shrewsbury School went up to Balliol College, Oxford, with an open scholarship, in 1888. He took his clinical course at Guy's Hospital, where he held a number of resident posts after graduating M.B., B.Ch.Oxon in 1895. He proceeded M.D. in 1900, obtained the F.R.C.S. in 1909, and the M.R.C.P. three years later. Settling in practice at Truro, he was elected surgeon to the Royal Cornwall Infirmary in 1902. During the last war he was surgeon to the Anglo-Serbian Unit and then to the County of Cornwall R.N. Auxiliary Hospital. On returning to civil life he was appointed surgical specialist for West Cornwall under the Ministry of Pensions. Mr. Panting was also honorary consulting surgeon to the Newquay, the Fowey, the St. Austell, and the Helston Cottage Hospitals, and to the Cornwall County Tuberculosis Sanatorium. He joined the B.M.A. in 1905 and was chairman of the West Cornwall Division 1924–6.

GEORGE ALGERNON FOTHERGILL, who died at the age of 76 at East Grinstead, gave up medicine many years ago to work as an artist. He was educated at Leamington College, at Uppingham School, and at Edinburgh University, graduating M.B., C.M. in 1895. He began the study of art at Uppingham, and at Edinburgh gained first-class honours in practical anatomy, and a medal in histology from the Royal College of Surgeons. During the latter part of the last war he served as M.O. of the 1st Cavalry Brigade at Aldershot with the rank of temporary lieut., R.A.M.C. Dr. Fothergill was an all-round athlete in his youth, and many of his pictures illustrated sporting subjects. He became well known as a painter in water-colour, a pen-and-ink draughtsman, a lithographer, and a designer of book-plates. His *Stones and Curiosities of Edinburgh and Neighbourhood* was illustrated by himself, and he published a number of essays, poems, and drawings. He exhibited at the Royal Scottish Academy, the Walker Art Gallery, Liverpool, the Leeds Corporation Art Gallery, and the Dudley Gallery in London. His collection of lithographs, engravers' proofs, etc., was acquired by the Corporation of Darlington.

Dr. WILLIAM BARBER BUTLER, formerly of Hereford, died on May 2 in retirement at Beaulieu, Hants. He studied medicine at the London Hospital, where he won scholarships in anatomy, in physiology, and in medicine, and qualified M.R.C.S., L.R.C.P. in 1894. Before settling in Hereford he had been resident accoucheur and house-physician at the London Hospital. He served for many years as surgeon to the Hereford General Hospital and Dispensary and retired from practice in 1929. He joined the B.M.A. in 1908, held office as honorary secretary of the Worcester and Hereford Branch in 1922–8, and as chairman of the Hereford Division in 1923–4.

Major GEORGE LEVERSTONE ALLEN, M.A., registrar of the School of Physic, Trinity College, Dublin, died on April 29, within a week of his eighty-eighth birthday. It was characteristic of him that he was at work regularly in his office in the School until two months before his death, and that he then left his desk with the greatest reluctance. It is given to few men to work hard and continuously for over seventy years, but Major Allen was an exceptional man. He enlisted in the Army when he was seventeen, and, after some years in the ranks, was commissioned in the Army Medical Service as a lieutenant (quartermaster). He saw service in almost all parts of the world and retired with the rank of captain in 1912, but was recalled during the last war and finally retired in 1918 with the rank of major. In 1913 he was appointed assistant registrar, and in 1926 registrar, of the School of Physic. He was distinguished physically for his activity and erect carriage and mentally for his wonderful memory and scrupulous accuracy. Until very recently his beautiful handwriting showed no trace of tremor. His urbanity was seldom ruffled, and his courtesy and willingness to help were extended to all who entered his office, from the most senior member of the staff to the most junior student. He knew every student who passed through the School and was respected and loved by them all. His colleagues will miss his experience, knowledge, and wise guidance. His passing will be mourned by the staff and students of the School and by medical graduates of Dublin University scattered over the world.—J. W. B.

Medical Notes in Parliament

Infantile Paralysis Outbreak in Mauritius

Col. STANLEY reported on May 2 that an outbreak of infantile paralysis occurred in Mauritius in March and 1,071 cases were notified up to the end of April. The following steps were taken to deal with it. Medical and nursing staff were immediately lent by the Governments of Kenya, Tanganyika, and Uganda, while the authorities of Oxford University made available the services of Prof. Seddon, who went to Mauritius by air accompanied by a research specialist, Dr. MacFarlan, from the Medical Research Council, and a masseuse. A special orthopaedic hospital had been opened under Prof. Seddon's immediate supervision. Two medical officers lent by the Army and R.A.F. respectively were co-operating in research work. Instructional advice for the people of the island had been widely issued. The outbreak appeared to be abating. Cases for the week ended April 28 decreased to 20 compared with 280 cases notified in the week ended March 24.

Sale of Practices

On May 3 Mr. STOREY asked whether the Minister of Health had any statement to make on the sale and purchase of medical practices in relation to the Government's proposals for a National Health Service.

In a written answer Mr. WILLINK stated that the Government recognized, as indicated in the White Paper, that a case could be made for the total abolition of the sale and purchase of publicly remunerated practices, and particularly of practices conducted in publicly provided health centres. The Government also recognized, as indicated in the White Paper, that the abolition would involve great practical difficulty and was not essential to the initiation of the new service. The Government felt that firm decisions, dealing with the practical difficulties fairly in the interests of all concerned if sale and purchase were to be abolished, could be reached only after some experience had been gained of the working of the new service and all the relevant facts had been ascertained. The Government did not propose, therefore, to make any alteration in the present custom in the forthcoming Health Services Bill, but proposed that a full inquiry into the whole question should be instituted by a committee appointed for that purpose after the new service had come into operation and experience of its working had been gained.

Meanwhile, to remove any present uncertainty, the Government wished to make it clear that if the sale of practices as a result of the inquiry he had mentioned be abolished or restricted by law, doctors affected would receive all proper compensation, on the understanding that (as indicated in the White Paper) the new service could not be allowed, by itself increasing values, to increase the amount of compensation payable. The Government also recognized that, pending the inquiry, many doctors would be returning from the Forces and entering new civil practices under the existing conditions of practice exchange. They were anxious that these men and women should not be prevented or discouraged from doing so by inability to find purchase money, and were discussing with the profession how this could best be secured.

Penicillin Supplies

Mr. WILLINK told Mr. G. Griffiths on May 3 that there was not yet enough penicillin for all restrictions upon its use to be removed. Penicillin could not be supplied on a doctor's prescription either for insured or for private patients. It was available only through hospitals. In most cases it should be administered in hospitals by staff specially trained in its use. Supplies were sufficient for all urgent cases likely to benefit from such use.

Health and Food in India

Mr. AMERY told Mr. Sorensen on May 3 that the incidence of cholera in Bengal as a whole had during the past year been below normal. He had seen recent press reports of a cholera epidemic in Calcutta and had asked for a report. Smallpox had been not very greatly above normal and very much below the corresponding figure for last year. Malaria, which had been for some time above the average, had recently been improving.

In reply to Mr. Fraser on the same date, Mr. Amery said the food situation in Malabar and Northern Madras had given rise to some anxiety, but the Government of India had been able to alleviate the situation by internal movement of "foodgrains." The Government of Madras had introduced systems of rationing which were reported to be working satisfactorily. He had had no report of any epidemic of cholera in Madras.

Silicosis among Slate Miners

Mr. TOM SMITH told Prof. Gruffydd on May 3 that the number of cases of underground workers in slate mines in North Wales certified by the Silicosis Medical Board for total disablement or suspension from the industry since Jan. 1, 1940, when these workers were first covered by the Compensation Scheme, was 85. As figures were only available from the beginning of 1940 and machines were in use before that time it was not possible to say definitely what the effect of machines had been on the incidence of silicosis. Wet drilling or other appropriate methods of allaying dust had now been adopted in place of dry drilling. These and other precautionary measures being taken should in time result in a decreased incidence of the disease.

Returned Prisoners of War

In a reply on May 3 to Sir E. Graham-Little Sir JAMES GRIGG said prisoners of war returning from Germany underwent a full examination by a medical board during their leave. Any who were considered to be unfit for further service would be discharged on medical grounds. Those who were not recommended for discharge reported to a unit at the end of their leave where there were special facilities for examination by medical and other experts. Some prisoners would be sent to physical development centres to improve their physical condition, and the extension of these arrangements would, if necessary, be considered. Moreover the soldier's medical category would be subject to review in the light of his further progress. A returned prisoner would be retained in this country for at least six months, and thereafter he would be sent abroad only if a further medical examination showed that he was fit for this service.

Tuberculous Service Patients

On May 8 Sir LEONARD LYLE asked the Secretary of State for War whether, in view of the increasing number of Service personnel who had contracted tuberculosis during their period of service, and who, in consequence, were discharged from the Service before they could be admitted to sanatoria, he would make a new regulation so that these men should not be discharged until at least eight calendar months had elapsed from the date of their first absence from duty on account of their disability. Sir JAMES GRIGG replied that until civil sanatoria were prepared to accept serving soldiers as patients he could not do what Sir Leonard Lyle wanted. This question was still being pursued.

Replying to further questions, Sir JAMES GRIGG said that these men had to be discharged because civil sanatoria would not take them as military patients. As soon as such sanatoria were prepared to take them as military patients the men could get exactly the same treatment as other soldiers. It was a question whether civil sanatoria could be persuaded to take them not as civil but as military patients. Dr. SUMMERSKILL asked why the Minister was not prepared to establish military sanatoria to remedy this injustice, and Sir JAMES replied that, as Dr. Summerskill ought to know as well as most people, hospital accommodation had been arranged in this war in the main under an emergency hospital system and not a system of a series of military hospitals.

Colonial Medical Students in Britain

Colonel STANLEY on May 9 assured Mr. Sorensen that there was no restriction on the number of West Africans who could apply for training in British medical schools and for training as nurses. Under war conditions, however, training institutions had been obliged to limit the number of Colonial medical students that could be accommodated. In regard to nurses, students had hitherto come to this country only by private arrangement, but steps were being taken to expand facilities for such training here. The number of West African medical students at medical schools in this country was understood to be 76 (including 12 Government scholars). There were also 11 medical students doing preliminary studies. There were believed to be about 10 girls being trained as nurses.

Married Women Doctors in E.M.S.

On May 10 Dr. SUMMERSKILL inquired whether the Minister of Health knew that under the conditions governing appointments in the E.M.S. a married woman doctor could not claim leave with pay on account of childbirth, whereas she was entitled to leave with pay on account of illness or accident; and whether he would take steps to remedy this injustice. Mr. WILLINK said he knew this. Married women enrolled as medical officers in the Emergency Medical Service were subject to the leave conditions applicable to all married women employed in the Civil Service in a temporary capacity. There would be no grounds for making a special exception in favour of E.M.S. officers.

Cost of Public Vaccination

Mr. VIANT asked on May 11 what was the total cost of vaccination carried out during the Glasgow smallpox outbreak of 1942 and of vaccination carried out during the Edinburgh epidemic of the same year. Mr. JOHNSTON replied that from estimates provided by the corporations of Glasgow and Edinburgh the principal items in the cost of vaccination during the smallpox outbreaks in question were:

		£
Glasgow:	Calf lymph, dressings, etc.	5,699
	Vaccination fees	10,469
		16,168
Edinburgh:	Calf lymph, dressings, etc.	5,944
	Vaccination fees	2,994
		8,938

He added that no Government grant was paid towards the expenditure, but lymph to an estimated value of £5,927 (not included in the figures above) was supplied free through the Government Lymph Establishment.

Smallpox at Indian Airfield.—Sir ARCHIBALD SINCLAIR stated on May 2 that recently there had been an outbreak of smallpox in India at an airfield used by transport aircraft. For their own protection and that of others Service personnel were not allowed to proceed by air to this airfield unless they had been vaccinated shortly before. Vaccination was, and remained, voluntary, and no one had been vaccinated against his will.

Hospital Beds.—Mr. ROSTRON DUCKWORTH inquired on May 9 whether, in view of the cessation of enemy air attacks, the beds in hospitals reserved for potential casualties would be at once returned to ordinary civil use.

Mr. WILLINK answered that the beds now reserved in certain hospitals in the Emergency Hospital Scheme were for all classes of patients for whose treatment he was responsible, including Service casualties and sick. No beds were specifically reserved for air-raid casualties.

Medical Advice in Military Detention.—On May 8 Sir JAMES GRIGG informed Mr. Turton that no soldier serving sentence in detention barracks was or had been released from so doing on the certificate of a psychiatrist alone. Medical advice, however, was one of the considerations on which the appropriate military authorities remitted or suspended sentences of detention.

Sickness among Bus Drivers and Conductors.—Statistics furnished to the Ministry of War Transport by the London Passenger Transport Board show during the year 1944 a sickness rate for central buses of 6.4% among drivers, 7.3% among male conductors, and 13.1% among women conductors. For country buses the equivalent figures were 3.3%, 6.2%, and 8.2%. For trams and trolley-buses they were 5.9%, 10.5%, and 17%. For railways under the L.P.T.B. the sickness rate for all operating grades was 6.7%.

Notes in Brief

Disabled men in receipt of 100% pension for total blindness arising out of the present war, including the Navy, Army, R.A.F., and Merchant Navy, number 300; for the last war the number was 1,800.

Mr. Churchill announced on May 10 that a basic petrol ration, freely at the disposal of private owners of motor-cars and motor-cycles, would be introduced in 30 days. An increased allowance would be given to cars and motor-cycles used for professional purposes.

Universities and Colleges

UNIVERSITY OF EDINBURGH

The Sixth Sharpey-Schafer Memorial Lecture, on "The Absorption and Excretion of Water, and the Antidiuretic Hormone," will be delivered by Prof. E. B. Verney, F.R.C.P., F.R.S., on Friday, June 8, at 5 p.m., in the Anatomy Class Room, University New Buildings, Teviot Place, Edinburgh. All interested are invited to attend.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

The Council has decided to institute monthly subscription dinners in the College for Fellows and Members of the College and members of the specialist associations linked with it through the Joint Secretariat. They will be held on the evening of the Wednesday preceding the second Thursday of the month, and the first of the series has been arranged for Wednesday, June 13. Applications will be dealt with in the order in which they are received and must reach the Secretary of the College in Lincoln's Inn Fields, W.C.2, at least a week before the date of the dinner, accompanied by payment of the inclusive charge of £1 1s. for each dinner. The Council's object is to give those associated with the College opportunities of meeting socially more often. If it is found that the opportunity of dining

the College is much appreciated arrangements will be made for these dinners to be held at shorter intervals. It is intended in the plans for restoration and development that facilities for lunching and dining in the College shall be greatly increased.

The following candidates were successful in the recent Primary Fellowship Examination conducted by the Royal College of Surgeons of England:

H. M. Bradmore, D. M. Brooks, W. Burnett, Muriel Crouch, M. P. Durham, A. W. Edwards, V. G. Griffiths, S. W. G. Hargrove, M. Kaye, L. P. Le Quesne, B. McCarten, D. A. Macfarlane, Doreen Nightingale, K. W. E. Paine, A. J. Partridge, R. E. Renaud, J. M. H. Ross, H. O. Thomas, P. C. Watson, Margaret Yeoman, J. Zimmermann.

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH

At a quarterly meeting, held on May 1, with the President, Dr. A. Fergus Hewat, in the chair, Dr. James Ronald (Stirling) was introduced and took his seat as a Fellow of the College. Drs. Cyril Hocken Tewsley, C.M.G. (Auckland, N.Z.), Munir El Gazayerli (Alexandria), Bryce Ramsay Nisbet (Kilmarnock), Albert Arthur Muse (Birmingham), and Ronald Haxton Girdwood (Edinburgh) were elected Fellows of the College.

Prof. J. A. Nixon was appointed Dr. Alexander Black Lecturer for 1945.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND

At a meeting of the President and Fellows of the Royal College of Physicians of Ireland, held on May 4, the following Members were elected Fellows of the College:

Vincent Cornelius Ellis, M.D., James Cyril Gaffney, M.D., Patrick Aloysius McNally, M.D., John Norman Parker Moore, M.D.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

At the monthly meeting of the Royal Faculty of Physicians and Surgeons of Glasgow, with Mr. William A. Sewell, President, in the chair, Jane Hyslop Merry, M.B., Ch.B., was admitted a Fellow of Faculty *qua* Physician and William Malcolm Gibson, M.B., Ch.B., was admitted a Fellow of Faculty *qua* Surgeon.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* the chief features of the returns were an increase of 122 notifications of measles, and 70 of scarlet fever; dysentery notifications were down by 37.

Diphtheria notifications were maintained at the level of the preceding week; the local variations of note were increases in Staffordshire of 10, and in Worcestershire of 11, and a fall of 18 in Northumberland. There was little change in the returns for whooping-cough. The rise in scarlet fever was mainly due to increases of 60 and 20 notifications in Lancashire and London respectively. The notifications of measles were up in Monmouthshire by 152, Surrey by 134, Derbyshire by 130, Northamptonshire by 208, and in Lancashire by 89; they were down in London by 256, Southampton by 152, Gloucestershire by 140, and in Warwickshire by 118.

There were slightly fewer cases of dysentery. The largest returns were Lancashire 61, Gloucestershire 47, Kent 41, Staffordshire 40, London 32, Yorks West Riding 32, Middlesex 28, Warwickshire 15, Hertfordshire 12, Worcestershire 12, Suffolk 12, Devonshire 11.

In *Scotland* diphtheria was up by 18 cases, scarlet fever by 20, and whooping-cough by 20; there were 96 fewer notifications of measles, and 9 fewer of dysentery. But dysentery increased in Edinburgh from 30 to 53 cases, and in Aberdeen from 21 to 34; the other large returns were Glasgow 44, and Dundee 14.

In *Eire* small decreases were recorded for most of the infectious diseases, the chief exception being a rise of 13 for measles. Eight cases of typhoid were reported from Donegal, Glenties R.D.

In *Northern Ireland* the only changes in the incidence of infectious diseases were a rise in diphtheria of 8, and a fall in measles of 11.

Diphtheria among Canadian Troops

The Canadian National Defence H.Q. announced that an outbreak of diphtheria among Canadian troops on the Western Front reached a peak of 118 cases per 100,000 in January, and had fallen to 35 per 100,000 by March. The outbreak did not reach serious proportions, due to the Canadian Army's policy of compulsory immunization.

Week Ending May 5

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,351, whooping-cough 1,050, diphtheria 504, measles 13,139, acute pneumonia 518, dysentery 469, paratyphoid 7, typhoid 3.

No. 17

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended April 28.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1945 (a)	(b)	(c)	(d)	(e)	1944 (Corresponding Week) (a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	56	3	18	3	1	71	14	32	3	1
Deaths		1	1				2	1		
Diphtheria	564	24	126	104	22	628	29	163	91	29
Deaths	7	—	2	2	—	5	—	5	3	1
Dysentery	486	32	188	3	—	218	37	79	—	—
Deaths				—	—				—	—
Encephalitis lethargica, acute	2	—	—	—	—	3	—	—	—	—
Deaths		—					—			
Erysipelas			32	7	1			42	4	4
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				16					4	
Deaths	43	8	6	4	4	49	12	8	10	4
Measles*	16,023	1058	341	65	23	2,055	207	559	214	19
Deaths	8	1	—	2	—	2	—	—	8	—
Ophthalmia neonatorum	59	5	15	—	—	80	5	17	—	—
Deaths										
Paratyphoid fever	3	—	2 (1A, 1B)	2 (B)	—	4	—	2 (B)	—	1 (B)
Deaths	—	—	1	—	—	—	—	—	—	—
Pneumonia, influenzal†	530	29	3	9	4	711	49	11	10	6
Deaths (from influenza)	12	2	1	—	1	7	—	5	—	—
Pneumonia, primary			174	31				205	30	
Deaths		25		11	10		31		16	17
Polio-encephalitis, acute	—	—				2	—			
Deaths		—					—			
Poliomyelitis, acute	5	—	2	—	—	9	—	1	1	—
Deaths		—					—			
Puerperal fever		1	11		—		5	15		—
Deaths										
Puerperal pyrexia‡	128	13	17	2	1	164	10	27	1	—
Deaths		—					—			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	1,426	71	212	13	34	1,764	120	213	24	66
Deaths	2	—	—	—	—	2	—	—	—	—
Smallpox	—	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Typhoid fever	3	—	—	13	—	9	—	2	6	7
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	1	—	—	—	—	—	—	—	—	—
Deaths				—	—				—	—
Whooping-cough*	1,190	65	201	39	24	2,397	223	241	70	27
Deaths	4	—	3	1	—	16	5	6	5	2
Deaths (0–1 year)	304	40	40	29	23	367	57	61	39	37
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	4,057	576	536	190	129	4,314	640	565	211	149
Annual death rate (per 1,000 persons living)			12·2	12·3	§			13·0	13·8	§
Live births	6,587	701	906	396	252	7,798	927	1018	638	310
Annual rate per 1,000 persons living			18·1	25·6	§			20·7	—	§
Stillbirths	186	21	30			250	23	38		
Rate per 1,000 total births (including stillborn)			32					36		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

§ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Medical News

The following films will be shown by the Scientific Film Association, in the last programme of its present series, on Wednesday, May 23, at 5.30 p.m., and again at 8 p.m., at the Royal Society of Medicine, 1, Wimpole Street, London, W.: "Killing Farm Rats," "Rabies," "Microscopic Observations of Living Tissue," "The Effect of Thymectomy on a Case of Myasthenia Gravis," and "The Effect of Centrifugal Force on Fighter Crews." Admission will be by ticket only, and those who have not already done so should apply immediately to the honorary secretary of the Medical Committee, Dr. S. J. Reynolds, 14, Hopton Road, London, S.W.16.

A meeting of the Medico-Legal Society will be held at 26, Portland Place, W., on Thursday, May 24, at 5 p.m., when Dr. Edward Glover will read a paper on "The Social and Legal Aspects of Sexual Abnormality."

A meeting of the Clinical Society of the Royal Eye Hospital will be held at the hospital, St. George's Circus, Southwark, S.E.1, on Friday, May 25, at 5 p.m., when a talk will be given by Dr. T. H. Whittington on alternating strabismus.

The Royal Sanitary Institute (90, Buckingham Palace Road, S.W.) announces the following sessional meetings: At Swansea Guildhall, Saturday, May 26, at 11 a.m., paper on "Reconstruction and Housing Proposals of Swansea," by Mr. J. B. Bennett; at Usher Art Gallery, Lindum Road, Lincoln, Saturday, June 9, at 10.15 a.m., papers on "The Influence of Housing Needs on the Planning Scheme," by Mr. R. L. Stirling, and "The Water Undertaking and its Contribution to the Nation's Health," by Mr. D. Whiteley; at Royal Institution, Colquitt Street, Liverpool, Friday, June 22, at 10.45 a.m., paper on "Public Health and the Social Services," by Dr. C. O. Stallybrass. In the afternoon a paper on "Post-war Housing" will be read by Mr. L. H. Keay.

The British Orthopaedic Association is meeting at Horton Emergency Hospital, Epsom, on Friday, June 1, and Hill End (St. Bartholomew's) Hospital, St. Albans, on Saturday, June 2.

A meeting of the Medical Society of the L.C.C. Service will be held at the North-Western Hospital, Lawn Road, N.W., on Wednesday, June 6, at 3 p.m., when there will be a clinical and pathological demonstration of puerperal sepsis and gastro-enteritis.

At a Court of the Directors of the Society for the Relief of Widows and Orphans of Medical Men, held on April 11, with Dr. R. A. Young, president, in the chair, the audited accounts for the year ended December 31, 1944, were presented and approved. The chairman brought to the notice of the directors the following personal item of interest: The first secretary of the society, the father of the present secretary, held office for 37 years, and his son has been secretary for 40 years, making a combined total of 77 years' service. The society has been in existence for 157 years, thus the last two secretaries have held office for practically half that period. The annual general meeting will be held on May 23, at 5 p.m. A new list of members has been printed, and any member may obtain a copy on application to the secretary at 11, Chandos Street, Cavendish Square, W.1. Membership of the society is open to any registered medical man who, at the time of his election, is residing within a twenty-mile radius of Charing Cross. Relief is granted only to widows and orphans of deceased members. Full particulars may be obtained from the secretary.

Dr. Edwin J. Cohn, professor of biochemistry at Harvard University, has been chosen as the first recipient of the Passano Foundation award. The Foundation was established in 1944 by the Williams and Wilkins Company, medical publishers, of Baltimore, to aid the advancement of medical research, especially research that bears promise of clinical application. Dr. Cohn is distinguished for his work on the fractionation of blood. Beginning in 1919 with a study of blood and blood proteins his research has yielded a group of five principal fractions of blood plasma.

Sir Raphael Cilento, M.D., Director-General of Health and Medical Services for Queensland and honorary professor of tropical and social medicine in the University of Queensland, has been appointed to take charge of U.N.R.R.A. antimalarial work in the Balkans.

The Ex-Services Welfare Society (Temple Chambers, Temple Avenue, E.C.4) will hold its 9th Annual Medical Conference at the Waldorf Hotel, Aldwych, W.C., on Friday, June 1, at 10.30 a.m., under the chairmanship of Lord Horder. Important post-war problems will be discussed.

Miss Charlotte Purnell, O.B.E., M.S., who died on June 20, 1944, at Amman, Transjordan, aged 75, was for 20 years a medical missionary of the C.M.S. in the Near East, and later conducted an English mission hospital at Amman. By her will she left £1,000 for that hospital.

Letters, Notes, and Answers

All communications with regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1. TELEPHONE: EUSTON 2111. TELEGRAMS: *Aitiology, Westcent, London.* ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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ANY QUESTIONS?

Pyelitis in Child of 2

Q.—*A well-developed infant aged 2 years had acute pyelitis four weeks ago. She was well in 2 days on sulphathiazole, which was given for 4 days in the hope of ensuring complete cure. She also had limited alkali. Nine months ago she had a similar attack, which responded to the same treatment. Now her urine shows a trace of albumin, a few pus cells, and B. coli. There is no external evidence of congenital deformity. Can I try a further course of sulphonamides and alkali before G.U. investigation? Is sulphamerazine the most suitable? If so, how much, and for how long?*

A.—In view of the short period of treatment given for the last attack it would be worth while to try a longer course before resorting to other measures. There is not enough information about the action of the newer sulphonamides on urinary tract infections to lay down any hard-and-fast rules about the choice of drug, and in any case different strains of organism vary in their sensitivity. A *B. coli* infection will usually respond to sulphanilamide, and, where this fails, sulphathiazole may succeed. A dose of 0.25 gramme of either drug 4 times a day should be adequate for treating a urinary tract infection in a child of this age: this treatment should be continued for a week, and alkali, as suggested, should be given in addition.

Analgesia in Midwifery

Q.—*What is the best and safest method of ensuring analgesia in midwifery? Recent discussion on this point has left me in rather a haze.*

A.—Although there is still no completely satisfactory analgesic for use in midwifery, there are several which are reasonably effective and safe. The results obtained with each method depend to a large extent on experience in their use, and each observer tends to adopt some particular method and to become expert in modifying it to suit individual cases; hence the various claims and opinions expressed. For the first stage of labour the older analgesics—morphine (with or without hyoscine) and chloral and bromide—still deservedly retain their popularity, although many barbiturates, such as nembutal, pernocton, seconal, are employed as alternatives. Neither morphine nor barbiturates, however, should be given within four to six hours of the birth of the child, and should therefore be used with caution in multiparous patients in whom labour is progressing rapidly.

Of the newer methods I would suggest that the inquirer try pethidine, 100 mg. intramuscularly, together with seconal gr. 1½, or scopolamine gr. 1/150, to be given when the cervix is about two fingers dilated. The dose of pethidine can be repeated in two or three hours if necessary. For details on the use of pethidine reference should be made to three articles in the *Journal*: 1944, **1**, 176, 179; **2**, 498. For analgesia at the end of the first stage and during the second stage of labour gas and air, administered by Minnitt's or other similar apparatus, still has the first claim for consideration from the standpoint of safety, non-interference with the progress of labour, analgesic properties, and relative simplicity. But again some experience in its use is necessary before the best results are obtained.

Breast Milk and the Diet

Q.—*Is there any scientific proof—as distinct from midwives' superstitions—that certain substances in normal household diet (particularly fruits and vegetables, tea and coffee) and common laxatives (e.g., phenolphthalein, senna, or cascara) have any deleterious, or indeed any pharmacological, action on the infant, when ingested by the lactating mother? To what extent, in fact, can the breast milk be modified in any direction by the mother's diet?*

A.—There are several interrelated questions here which can be dealt with under three headings:

(*a*) *The Secretion of Drugs in Human Milk.*—There is ample proof that this occurs. The late Eric Pritchard used to say that the

mammary gland was not nearly such an efficient filter as the placenta, and, in consequence, drugs can get through more readily. The list includes arsenic, aspirin, bromides, mercury, iodides, salicylates, and, more recently, the sulphonamides. Of the alkaloids, morphine and atropine are generally included. Other substances vouched for are alcohol and nicotine. Observations have been made not only on the analysis of milk for these substances, but also for the effects on the infant.

(*b*) *Have such Drugs or Substances any Effect on the Infant?*—Bromides given to the mother will produce a rash in the infant as well as drowsiness. Organic arsenicals are said to have produced sudden death. The relation between phenolphthalein given to the mother and green stools in the baby is seen sufficiently often to suggest cause and effect. But babies vary in their susceptibility. A test "dose" of sour fruit (e.g., unripe plums) to a ward of lying-in mothers will produce green stools in only some of the infants. Some lactating women can eat anything they like, even to the more erotic foods such as lobster, without any apparent trouble in the baby. Others have to be more careful, as certain articles seem to cause infantile upsets. The same would appear to apply to common laxatives.

(*c*) *Modifications in Composition of Breast Milk.*—As regards the average percentage of the main constituents of milk, little can be done to alter them by diet. Indeed, even starvation seems to mean only less milk, not a qualitative alteration. The superstition about the milk being "too weak" (not confined to midwives, but widespread among doctors) dies hard. Total solids vary very little. Occasionally, an over-fat milk can be rendered less rich by reducing the mother's fat intake. But the constituents other than protein, fat, and carbohydrate—i.e., the minerals and vitamins—probably do vary and can be varied according to a mother's diet.

Calciferol and Toxisterol

Q.—Does toxisterol exist, and if so, does it occur in the natural sources of vitamin D, such as cod-liver oil?

A.—Toxisterol does exist. It is one of the many sterols formed by irradiating ergosterol with ultra-violet light. The first product of irradiation is calciferol, which by further irradiation is converted into lumisterol, tachysterol, and toxisterol. Over-irradiation of ergosterol produces toxisterol. Toxisterol does not occur in cod-liver oil and natural sources of vitamin D. As its name implies, it produces toxic reactions and has a low antirachitic potency.

Psychological Causes of Insomnia

Q.—On Sept. 30, 1944, p. 458, a question was asked about nembutal for sleep. The reply stated that this was practically innocuous, but that it did not get at the causes of insomnia. I wonder how tranquillity can be obtained by those of us who throughout our lives have worried unduly—or perhaps not unduly but enough to prevent sleep.

A.—The most common psychological cause of insomnia is, of course, that one has "something on one's mind"; in other words, it is due to the perseveration of some unsolved problem (reference may be made to the reply on sleep-walking, *B.M.J.*, Jan. 27, 1945, p. 139). In ordinary and sporadic instances of insomnia, such as most people suffer from on occasion, it is best to wake oneself right up, if not fully awake already, and ask oneself what one is worrying about. Even if we cannot solve it at the moment we may at any rate see what it is and defer solution till the morning.

But most insomnia is not so simple as that; for the mind tends to push away unpleasant things and may succeed in doing so, entirely repressing and forgetting them. At night, the worry returns when our vigilance is relaxed in sleep. The clearest instance is that of people who wake up at a certain time every night, say at 3 a.m., irrespective of external stimuli. This is always found on analysis to be due to the fact that at that precise moment the patient once had some unpleasant experience or problem: one man wakened to find he had dysentery; another to realize his wife no longer cared for him. We go to sleep to escape the problems of the day; we wake up to escape the problems of the night.

The link between the physiological and psychological is instanced in what we may term psychosomatic insomnia: worry affects the gastric secretions and produces indigestion, and the indigestion produces the insomnia.

Chronic insomnia is usually due to the persisting problems and worries of our lives which we repress, and of which we are unaware. It is in fact precisely of the same nature as neuroses and must be regarded with the same seriousness as disorders like agoraphobia, requiring radical treatment. In such cases we are unaware of the object of anxiety, and tend to transfer our worry to insignificant things; or, because we cannot sleep, this anxiety gets transferred to the sleep itself, and we begin to worry whether we shall sleep or not; and that worry then appears to be the one which keeps us awake, and a very real worry it is. But the fundamental trouble lies deeper, and needs thorough psychological investigation. Perhaps the most common cause is where there have been dreads and fears in early childhood, say from illness, against which fear an attitude of self-sufficiency, success, ambition, and achievement is set up *as a barrier*. So urgent is it to get on that the personality is in a perpetual state of strain and tension. The investigation and treatment are usually long, but if successful are preferable to being doped all one's life.

Short of radical treatment, a form of self-hypnosis is often valuable—namely, with eyes closed, and slightly turned upward, to gaze fixedly at one of the spots or lights from the retina, and whenever our attention wanders to bring it persistently back. Hypnosis is essentially a phenomenon of attention, and if we can keep our attention fixed on the spot by effort of will, we exclude the worry and by tiring our attention go to sleep. But persistence is very necessary.

Peat Baths

Q.—Are there any spas or other places in this country where peat baths are given as I have seen them given abroad? Is there any firm that prepares peat for home baths?

A.—Peat baths are given in this country on an extensive scale at Buxton, Harrogate, and Strathpeffer on the same lines as at Continental spas. It may be of interest to mention that Dio Cassius, writing at the time of Tacitus the Roman historian, records that the Picts used peat baths on primitive lines, presumably for the treatment of rheumatism induced by the climate of our islands, so that originality in the use of the method does not belong to the Continental spas. So far as the writer is aware no firm supplies peat prepared for baths; it would probably be expensive and unsatisfactory without special arrangements for heating the peat.

Record Number of Caesarean Sections

Q.—How many Caesarean sections for pelvic disproportion may be safely carried out before sterilization must be done to prevent the danger of future pregnancies? Is there any available information on the "record" number of Caesarean sections carried out on one patient?

A.—Each Caesarean section entails the ordinary risks of a major operation. When the operation is repeated the likelihood of adhesions increases, the abdominal wall becomes scarred and weakened and so does the uterine wall—involving danger of ruptured uterus in a subsequent pregnancy. The occurrence and importance of these factors vary in different patients, so the number of operations which can "safely" be carried out also varies. Apart from the question of safety, the wishes of each patient should be carefully considered in reaching a decision—as should other factors, such as whether the other children have survived. Most women consider—and their views are supported by most obstetricians—that when they have suffered the discomfort, inconvenience, and risks of three operations they have "done their duty," so sterilization is usually carried out at the third section. But this is a practice based on general principles and experience rather than any absolute indication, and need not be adhered to strictly in any given case.

Five or six Caesarean sections on the same patient are not very uncommon, but the published "record" appears to be held by the patient whose ninth operation (eight upper segment and one lower segment) was carried out and reported by D. J. McSweeney (*Amer. J. Obstet. Gynec.*, 1940, **39**, 155). She had also had two other abdominal operations—appendicectomy and cholecystectomy—yet at the time of the ninth section, and at the age of 38, she asked not to be sterilized because she was anxious for further children. However, by the time she was 45 there had not been any more pregnancies. According to McSweeney the previous highest number recorded was seven.

X Rays for Perionychia

Q.—Is there any satisfactory treatment for (non-purulent) perionychia of the fingers?

A.—Perionychia often responds to small doses of *x* rays, say 50 *r* (180 kV, H.V.L. = 1.0 mm. Cu) every fifth day for six weeks.

Treatment of Warts

Q.—There appears to be a large increase in the incidence of warts. The treatment recommended varies from x rays to nitric acid and incantations. I shall be grateful for suggestions for rational treatment of a case which, in spite of local applications and x-ray treatment, is still extremely painful to the small girl who is suffering from it. Is the condition contagious?

A.—It is assumed that the wart is on the sole, where treatment is made more difficult by the thick horny layer in which the wart is embedded. A 20% salicylic acid plaster applied exactly to the wart—and removed from time to time—held in position by elastoplast, often succeeds. Local analgesia and the curette are also effective, or prolonged freezing with CO_2 snow may be tried; this, however, requires practice and experience. The condition is probably contagious, the bathroom floor and mat providing the link.

JUN 15 1945

Prognosis in Hodgkin's Disease

Q.—*Does complete recovery from Hodgkin's disease ever occur, and if so, after what interval, during which the patient is free from signs and symptoms, can it be assumed to have taken place? If complete recovery is possible, in what percentage of cases does it occur?*

A.—There is no evidence that complete recovery from Hodgkin's disease ever occurs. About 80% of the subjects die within three years of the onset of symptoms, and only about 5% live more than five years. In any large series of cases there will be a few with a duration up to ten years, and survival for twenty-five years has been recorded. It is not possible to make an accurate prediction in the individual patient. Even though the patient has been completely free of symptoms for months or years, the disease may suddenly reappear in an acute and rapidly fatal form.

Intramuscular Injection of Iron

Q.—*In the treatment of microcytic anaemias, is there a physiologically effective preparation of iron for intramuscular injection?*

A.—No, there is not. Iron is one of those substances which are much more toxic by injection than by mouth, and the minimum effective dose (25 mg. Fe a day) is very close to the maximum tolerated dose. Immediately after the injection of this amount of iron the patient experiences unpleasant symptoms such as feelings of warmth, nausea, vomiting, palpitation, and precordial constriction. It is conceivable that a preparation might one day be found from which the iron is gradually released, as the active arsenic is released from neoarsphenamine, but the intense physiological activity of iron and the absence of channels of excretion do not make the prospect very hopeful.

LETTERS, NOTES, ETC.

Possible Contagiousness of Cancer

Dr. J. H. DOUGLAS WEBSTER (London, W.1) writes: The expert answering the question on this subject (March 31, p. 468), who says that "cancer is no more contagious than broken legs," seems to ba this verdict (the orthodox one) on the observation that a chicken sarcoma does not spread to chickens in the same pen; and on the scepticism statisticians have about "cancer houses." But should not a distinction first be drawn between "closed" and "open" cancers? A cancer shut off in an otherwise normal organ (as breast or liver) cannot be contagious: but may not an open cancer (of skin, lip, cervix, or rectum) possibly be contagious? In patients occasional infection of the opposite lip or labium has been observed; and infection of an abdominal or breast scar during operation (as in a stitch-hole) has often been noted. Patients with skin cancer sometimes apparently infect themselves by scratching: I have now a patient with multiple skin cancers of the face, probably due to this cause. Then I know of two instances of lung cancers in husband and wife; one of a wide ulcerated abdominal wall sarcoma where the husband after months of helping with the dressings had a histologically similar spindle-celled sarcoma of the foot; a rectal case in which a young maidservant had apparently become infected from her mistress by using her enema syringe—confirming two similar instances noted by Bland-Sutton (from Macewen, *Tumours*, 1922 ed., p. 268); and there are probably more uterine cervix and penile cases than "chance" would account for (Leighton, 1932; Desaive, 1933). There are also the two striking instances, almost certainly infective, detailed in my book *Periodicity and Cause of Cancer* (1940, p. 109).

For contagion to be possible an abrasion on the skin or mucous membrane would seem necessary (as scratching, or rough use of an enema syringe), but given such an opportunity can *all* open cancers be considered 100% non-contagious? There may be only a decimal percentage involved, but is it scientific to ignore this possibility? In any case is it wise to draw rigid conclusions about a disease the cause of which is not yet known? Should cancer prove in the end to be a virus disease (see Oberling's recent *Riddle of Cancer*), open cases of cancer should be considered *possible* sources of infection, though to a much less degree than many other virus diseases, as warts.

John Knyveton's Diary

Prof. MILES PHILLIPS (Carmarthen) writes: I am interested in your reply to the question on the probable origin of the *Diary of a Surgeon in the Year 1751–1752*. I would venture to amplify it by quoting a note written by myself in December, 1941, on the fly-leaf of my own copy of this book: "I have no doubt that this *Diary* is an artefact, largely based on the *Memoir of my own Life, written in 1779*," by Thomas Denman, M.D. (1733–1815), and on the *Continuation* of that *Memoir*, signed B, and written, no doubt, by his son-in-law, Matthew Baillie. Convincing evidence of this is to be found by comparing statements on pages, 4, 5, 6, 147, 313–16 of the *Diary* with statements on pages lix, lxviii–lxxii, and lxxvi–lxxviii of the *Memoir* and its *Continuation*, which are to be found in the seventh edition (London, 1832) of Thomas Denman's *Introduction to the Practice of Midwifery*. The mind of a reader of the *Diary* is somewhat prepared for the possibility, by a referen in the "editor's note," to "this being an age of impudent litera allusions."

Dr. J. F. BLACKETT (Bath) writes: I have made the followi additional criticisms of Knyveton's Diary (April 21, p. 579): th are, of course, of little importance except from the point of vie of establishing authenticity. "The Village of Hestley, Kent (p. 9) is not mentioned in the gazetteers I have been able to consul In England, Sept. 2, 1752, was followed by Sept. 14, to adju to the Gregorian Calendar; and the dates Sept. 3–13 inclusive o pages 270 to 283 had no existence. The change, however, may n have been observed by ships at sea. If Aug. 30 (p. 269) was Sunday, as it was, and the change to the Gregorian reckonin ignored, then Nov. 7 (p. 306) would be Saturday, not Sunday stated—and so would Nov. 14 and 21 (pp. 307 and 309). In Englar they were Tuesdays.

Malaria and Syphilis

Brig. T. E. OSMOND (Ashford, Middlesex) writes: Whil being the last person to question your omniscience in most matter I cannot agree that "there is no evidence that malarial infecti has any therapeutic effect on a *Treponema pallidum* infection (*B.M.J.*, April 28, p. 618). Surely the well-known effect of induce malaria on G.P.I. gives the lie to this. Your inquirer might interested to read an article by A. A. Rosenburg (*J. Lab. clin. Me* 1945, **30**, 149), who claims to be able to distinguish between positi serum reactions due to syphilis and malaria respectively by pr cipitating syphilis reagin with ammonium sulphate.

*** Is not the emphasis on "infection"? And is not the succes ful treatment of G.P.I. by malaria due to its pyrogenic effect?— ED., *B.M.J.*

The Examiner's Attitude

Dr. R. G. BLAIR (New Buckenham) writes: The letter fro Mr. H. I. D[illegible]h (March 31, p. 470) on the examiner's attitud prompts me to support the writer's views from a different angl For the past fifteen months it has been my lot to study specialist opinions in many hundreds of different cases. The gross difference of opinion expressed by specialists on many individual cases leav me with the impression that if either specialist were being examine by the other for a higher degree he would be ignominiously faile I have long felt that our system of examination as a qualifying pro cess leaves much to be desired, and I would suggest that the furthe we get from purely clinical diagnosis, and the more we depend o mechanical aids to investigation, the greater will be the margin o our inexactitudes.

19th General Hospital

Col. JAMES O'GRADY writes from Stoneacre, Swinton, Manchester Please allow me to bring to the notice of past and present member of 19th General Hospital the fact that an Old Comrades Associatio is in process of formation. I should be glad if any officers, nursin officers, warrant officers, or other ranks, who are interested, and ar or have been on the strength of the unit, would send me a postcard giving rank, name, and present address; I will then forward a for of application for membership.

Corrections

We must apologize to Dr. P. Ellinger for errors made in sendin his letter "Detection of Nicotinic Acid Deficiency" (May 12, p. 67 to the press: 2nd paragraph, line 12, should have read, "Najjar i his latest paper *did not* propose . . ."; ante-penultimate line of 2n paragraph, "Nicotinamide is *not* considered"; 3rd paragraph, 7t line from end, "nicotinamide" should have read "nicotinamid methochloride"; the last line but one of the 4th paragraph shoul have read "(20 to 50% of the values found in healthy peopl were . . ."

Dr. R. CRUICKSHANK writes: May I correct some ambiguities i the report on my remarks at the R.S.M. on penicillin in urinar infections (*Journal*, May 12, p. 674). (1) The last sentence o paragraph 2 should read, "and therefore reliance must *not* b placed . . ." (2) In the table, the sensitivity of coliform organism should be 15–30 units, not 30–60. The word "ratio" should b omitted. The point of this table was to show that with a dail dosage of 100,000 units of penicillin a urinary concentration o 30–40 units per c.cm. could be obtained, and therefore penicilli could be used in the treatment of urinary infections due to *St faecalis*, *B. proteus*, and some of the coliform organisms. In m concluding remarks I said I had recently visited a Canadian hospita in this country where they were using highly purified penicillin, an it was the custom there to use procaine as the patients objected the local analgesic were omitted. Omission of the night doses cou be done in the treatment of more localized infections, but not i septicaemic conditions.

Mr. HERBERT BROWN (Worthing) writes to correct two errors his letter of May 5 (p. 645): (1) he entered U.C.H. in 1881, n 1880; and (2) was house-physician to Ringer in 1886, not 1881.